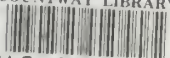


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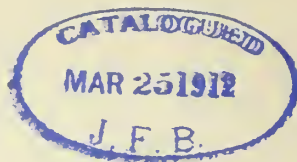
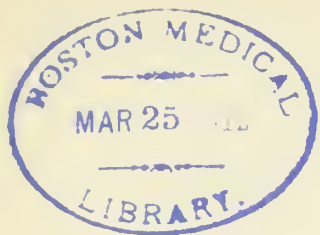
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ORIGINAL ARTICLES

THE MEDICAL PROFESSION AND THE PUBLIC.*

WILLIAM L. BAUM, M.D.

CHICAGO.

Since the time when the medicine man (a mixture of ecclesiastic and physician from whom the medical profession evolved) was the one permanent authority of the tribe until the present, the relations between the medical profession and the public have always been intimate and close. The closeness of these relationships was crystallized into the Latin adage, "That the health of the people was the supreme law," a belief still too often expressed in the enforcement of shotgun quarantine by a community terror-stricken at the spread of pestilence. The primitive man idea was that disease arose from spirits of like qualities to human beings who could be placated or frightened off. The spread of disease now charged to germs was by him charged to spirits. These were very frequently attracted to woman who, as the seat of periodical bloody manifestations, was very seductive to the omnipresent spirits. A much quoted couplet still expresses this dread of women. This dread still crops out during epidemics, and is a potent factor in the ascription of them to poisoning or superhuman influences; belief in witchcraft as a cause of disease is still to be encountered not only in American communities of European origin, but likewise among the mountaineers of West Virginia, Georgia, North Carolina, Missouri and Kentucky, and also in western Pennsylvania. The most potent result is a dread of the unknown, which grows frenzied at the progress of an epidemic, yet ignores contagion. As the malicious mesmerism of the Christian Scientist, it has led to prosecution for murder, and is likely to produce homicides in fancied self-defense of the witchcraft finder variety.

From superstition, well called the sponsor of miracle and half-brother of faith, the medical profession in its evolution has freed itself and with it partially the public. More than twenty centuries ago Homer sang:

*Address delivered at the Fifty-ninth Annual Session of the Illinois State Medical Society at Peoria, May 19-21, 1908.

A learned physician, skilled to heal,
Is more than armies to the public weal.

The medical profession early recognized that its great mission was prevention rather than healing. By healing it destroyed the sufferings of the individual; by prophylaxis it prevented the suffering of the individual and community alike. Here yawned the chasm between the altruism of the physician and the egoism of that priest magician, the medicine man. Anatomy, embryology, physiology, bacteriology, pathology and state medicine all sprang from this altruism. The egoism of the medicine man still survives in the "cures" by quacks and faith healers. To the physician, diagnosis, which implies knowledge of cause and effect, is the all-important matter. To the faith healer and quack cure is all that is needed, since any one can diagnose. Such beliefs fall below even the intellectual level of primitive man in not recognizing the dangers of contagion. The gains in public health and welfare have not been made without great self-sacrifice on the part of the physician. His own gains from his care of the public have, however, been by no means small. His life expectancy, as Salzmann, of Würzburg, has shown, has risen from 36 years in the sixteenth century to 58 in the nineteenth; although he has abandoned the terror-creating, vulture-like antiseptic attire of the fourteenth century, and even the gold-headed cane, formerly a receptacle for aromatic antiseptics. Certain European commercialists have denied the existence of American ideals, yet American physicians since the days of Rush have peculiarly illustrated the truth of Barry, that:

Whether on the scaffold high,
Or in the battle's van,
The fittest place for man to die
Is where he dies for man.

The existence of such ideals implies obligations. The widespread repugnance of the physician to patents and secret remedies is in obedience to the command, "Freely ye have received, freely give." The profession has received its science freely and generously from the past, and is bound to act with equal generosity to the future. The physician who violates this command is a monopolist, who strikes at the most vital interests of both public and profession. The profession's relation to the public must be carried out without reference to monetary motives. When these enter in, the sense of duty and the high ideals of the profession are destroyed, and each individual member of the profession suffers thereby. Any privilege granted a profession by the law is granted only because it is affected by the public use. Every attempt to run the profession on a purely business basis strikes a blow at this doctrine of the law and damages the social position of the physician. The fading political power of the American medical profession has resulted from this business view.

The pre-revolutionary and revolutionary medical profession took an active part in all statecraft and dominated public thought because of its admitted freedom from interested motives. The five medical signers of the Declaration of Independence were pre-eminent in a body of peculiarly well-balanced men, free from political hysteria. Benjamin Rush was

not only prominent in all departments of science, but was likewise a great political economist. Oliver Wolcott had no superior among the financiers of his time, and managed the finances of the United States for years. Washington went far beyond Roosevelt in honoring the medical profession, for he made Dr. McHenry his Secretary of War. To public belief in medical altruism these men owed their influence. While the decline in medical influence is in part due to the thirst for false and fraudulent advertisement by the press, and the resultant eulogy of quacks and medical frauds, still such advertisements and their resulting puffs were present in the late eighteenth and early nineteenth century, whence this picture of Crabbe, one of the many medical poets :

But now our quacks are gamesters, and they play
 With craft and skill to ruin and betray,
 With monstrous promise that delude the mind,
 And thrive on all that tortures humankind;
 Void of all honor, avaricious rash,
 And twenty names of cobblers turned to squires
 Aid the bold language of these blushless liars;
 And then in many a paper through the year
 Must cures and cases, oaths and proofs appear—
 Men snatched from graves as they were dropping in.

The nineteenth century, however, has been marked by a dangerous attempt at exploitation of the physician's confidential relations with patients by stockjobbers. Too often in one way or another the physician permitted himself to be used as the titled guinea-pig or fake directors are used in England by swindling stock companies. Perhaps no more dishonorable use of the profession in this particular can be imagined than that depicted by Dickens—Martin Chuzzlewit. Here appears the medical director of insurance companies, appointed for business reasons only. In this irreverent century not even the most holy of holies can escape the fierce light which beats on the throne, as witness the Anglo-Bengalee dinner :

"The lunch was handsomely served, with a profusion of rich glass, plate and china, which seemed to denote that eating and drinking on a showy scale formed no unimportant item in the business of the Anglo-Bengalee Directorship. As it progressed, the Medical Officer grew more and more joyous and red-faced, in so much that every mouthful he ate and every drop of wine he swallowed seemed to impart new luster to his eyes and to light up new sparks in his nose and forehead.

"In certain quarters of the city and its neighborhood Mr. Jobling was a very popular character. He had a portentously sagacious chin and a pompous voice, with a rich huskiness in some of its tones that went directly to the heart like a ray of light shining through the ruddy medium of choice old burgundy. His neckerchief and shirt-frill were ever of the whitest, his clothes of the blackest and sleekest, his gold watch chain of the heaviest, and his seals of the largest. His boots, which were always of the brightest, creaked as he walked. Perhaps he could shake his head, rub his hands, or warm himself before a fire, better than any man alive, and he had a peculiar way of smacking his lips and saying,

'Ah' at intervals, while patients detailed their symptoms, which inspired great confidence. It seemed to express: 'I know what you're going to say better than you do, but go on, go on.' As he talked on all occasions, whether he had anything to say or not, it was unanimously observed of him that he was full of anecdote, and his experience and profit from it were considered for the same reason to be something much too extensive for description. His female patients could never praise him too highly, and the coldest of his male admirers would always say this for him to their friends, that, whatever Jobling's professional skill might be—and he had a high reputation—he was one of the most comfortable fellows you ever saw in your life.

"Jobling was, for many reasons—and not last in the list because his connection lay principally among tradesmen and their families—exactly the sort of person whom the Anglo-Bengalee Company wanted for a medical officer. But Jobling was far too knowing to connect himself with the company in any closer ties than as a paid (and well paid) functionary, or to allow his connection to be misunderstood abroad if he could help it. Hence he always stated the case to an inquiring patient after this manner:

"'Why, my dear sir, with regard to the Anglo-Bengalee, my information, you see, is limited—very limited. I am the medical officer in consideration of a certain monthly payment. The laborer is worthy of his hire; *bis dat qui cito dat*' (classical scholar, Jobling, thinks the patient; well-read man), 'and I receive regularly. Therefore, I am bound, so far as my knowledge goes, to speak well of the establishment.' (Nothing can be fairer than Jobling's conduct, thinks the patient, who has just paid Jobling's bill himself.) 'If you put any question to me, my dear friend,' says the Doctor, 'touching the responsibility or capital of the company, there I am at fault, for I have no head for figures, and, not being a shareholder, am delicate of showing any curiosity whatever on the subject. Delicacy—your amiable lady will agree with me, I am sure—should be one of the first characteristics of a medical man.' (Nothing can be finer or more gentlemanly than Jobling's feelings, thinks the patient.) 'Very good, my dear sir; so the matter stands. You don't know Mr. Montague. I'm sorry for it. A remarkably handsome man, and quite the gentleman in every respect. Property, I am told, in India House, and everything belonging to him beautiful. Costly furniture on the most elegant and lavish scale. And pictures which even from an anatomical point of view are perfection. In case you should ever think of doing anything with the company, I'll pass you—you may depend upon it. I can conscientiously report you a healthy subject. If I understand any man's constitution, it is yours. And this little indisposition has done him more good, ma'am,' says the Doctor, turning to the patient's wife, 'than if he had swallowed the contents of half the nonsensical bottles in my surgery. For they are nonsense, to tell the honest truth; one-half of them are nonsense, compared with such a constitution as his.' (Jobling is the most friendly creature I ever met with in my life, thinks the patient, and upon my word and honor I will consider of it.)

“‘Commission to you, Doctor, on four new policies and a loan this morning, eh?’ said Crimple, looking, when they had finished lunch, over some papers brought in by the porter. ‘Well done.’

“‘Jobbing, my dear friend,’ said Tigg, ‘long life to you.’

“‘No, no, nonsense! Upon my word, I’ve no right to draw the commission,’ said the Doctor: ‘I haven’t really. It’s picking your pocket. I don’t recommend anybody here. I only say what I know. My patients ask me what I know and I tell ‘em what I know. Nothing else. Caution is my weak side—that’s the truth—and always was from a boy. That is,’ said the Doctor, filling his glass, ‘caution in behalf of other people. Whether I would repose confidence in this company myself if I had not been paying money elsewhere for many years—that’s quite another question.’”

Dickens, while appreciating the humorous side of the profession, as witness his pictures of Bob Sawyer, Ben Allen and Parker Peps, had a high regard for its ideals, shown in the portraits of Allen Woodcourt and Losborne. In Anglo-Bengalee, he castigated commercialism, not the profession. Not only do insurance companies employ touts, but stock jobbers often offer them special advantages to secure their influence on the investments of patients. The physician is here returning to medicine man antics, and usurping the former field of the ecclesiastic. That the medical profession is affected with a public use is legally admitted by its exemption from jury duty, except in insanity cases; its presence here is on the expert or court friend principle.

No adequate provision has been made in this state for proper collection of vital statistics, still this does not justify the profession in its neglect of what appears to be an obvious duty. The collection of these aids the great work of prophylaxis by the profession, besides control experiments are only possible through these. Birth records are urgently needed in the interests of patients. Property rights often depend upon them. In European schools the birth records are frequently needed. Physicians who neglect to report births are evading an obvious duty.

The statute which provided for the payment for birth reports has been made nugatory by the failure of county boards to provide for its payment. The words of the statute, however, show that such reports were regarded as a duty of all citizens, and hence the penal clauses of the statute can be enforced, since it is removed thereby from the domain of class legislation. It does not come under the purview of the Supreme Court decision, in *Millett vs. the People*, since this was based on an attempt to require statistics from mine owners alone. The non-report of contagious diseases comes more clearly under the domain of the police power. It is a duty incumbent on all citizens.

The physician who evades the law requiring such a report because of a commercial regard for property rights makes a claim degrading to the profession, a claim, moreover, that, were medical practice acts enforced in spirit as well as letter, would mean revocation of license, since neglect of the ordinary duties of a citizen is decidedly disreputable in a physician.

While the doctrine laid down by Judge Creighton, in the Dixon case: "Physicians in this state are favored children of the state, a department of the state government is maintained largely for their benefit, they are so protected by the laws of the state and by public opinion and confidence that in five minutes' time a doctor may earn more than ordinary labor could in a day." This is decidedly untenable, since the health department is for the benefit of the people and has been repeatedly declared not to be the creature of class legislation, and the arraignment of the physician for earning more in five minutes than the laborer earns in a day has been denounced as demagogism by more than one Supreme Court.

The physician's first duty is to his patients, and the profession has always unselfishly yet wisely urged public sanitation as a means of practicing these. One great defect in the medical literature is impressionism. The control experiment and the alternate hypothesis so essential to the discovery of the truth are contemptuously ignored for what is called clinical experience, satirically riddled by Pasteur. This great defect in medical work has been lately pointed out by the Carnegie Research Fund Committee: this impressionism is unworthy of scientists who are supposed to see that

Errors like straws, upon the surface flow;
Who'd seek for pearls or truth must dive below.

Such impressionism can be corrected only by proper comparisons; these can be made only with statistics collected under impartial conditions. Many a therapeutic or surgical absurdity has been exposed by these.

Some years back a homeopath reported 42 cases of diphtheria cured by sepia or cuttlefish bone; not a single case had been reported to the health authorities, who fined him for non-report. He alleged in defense the Pickwickian plea, that these cases were merely illustrative of what he believed ought to occur. Control of disease is not possible unless the public be properly educated; since proper education creates popular opinion of a medical type, without such opinion, law is useless. The American panacea of law to remedy abuse proves farcical in practice, since there are hundreds of ordinances and statutes unenforceable except for blackmail purposes now on the statute books.

The great necessity in public training is a recognition that diagnosis, not therapeutics, is of the first importance. The public makes its own diagnosis, and then demands treatment, not prophylaxis or treatment. This tendency is fostered by quacks, by sectarians, by faith healers, by gross lesionists, and the surgically biased. To the failure to diagnose neuropathic hysteria and neurasthenic symptoms and to the ascription of these to gross lesions has been due the spread of the fame of miracle-workers, sectarians and the operative itch. Mesmer owed his boom to the fact that Storek, the internist, and Wenzell, the oculist, ascribed hysteric jaundice and hysteric amblyopia to a gross lesion of the liver, and to cataract. The girl relapsed from time to time, but her first recovery gave Mesmer a boom he did not lose until long after the adverse report of

Franklin, Bailly and Lavossier. Many a miracle has been worked on a hysteric neuropath or neurasthenic, who had declined an operation, based on alleged gross lesions diagnosed by a regular practitioner. It is true that many patients regard a proper diagnosis as an insult to their acumen and seek some one to agree with them. It is in just such patients that education and the profession have fostered sectarianism and miracle-working by neglecting it.

Biochemic lesions are too little taught in medical schools, and gross secondary lesions are given too much attention as primary phenomena. The present century began with a period of social stress and the emotional explosions consequent on this have removed checks upon primitive beliefs, whence the demonology of Dowicemism and Eddyism, and whence the dynamic energy of Hahnemannia into like beliefs in sectarians, photographs of the soul, and casting out of devils have taken the place of one-hundredth poteneies. Professional education of the public means sanitary and diagnostic education, not therapeutic. The procrustean bed of therapeutics on which quacks, miracle-workers, march to victory is born of primitive egotism and sets at defiance the truth of the popular proverb, "That what is one man's meat is another man's poison."

The first duty of the profession to the public in sanitation is in the prevention of disease. Such training should begin with prenatal development. The child, when conceived, is not a fully developed human being; it has to pass through several stages, where organs common to all backboneed animals appear and disappear. The higher organs in properly conceived and properly surrounded embryos gain at the expense of the lower. Defects in either of these two elements means a runt or a weakling, predisposed to disease. Unfortunately, such weaklings have, like the lower animals, many offspring. Race suicide discussions have taken into account the production of children alone, not their care prenatally and postnatally. Prenatal care involves care of the mother during pregnancy, since proper development of the child is chiefly attained by the environment furnished by her during pregnancy. In the strict sense of the term, disease is not inherited, weakness creating a tendency may be, where children are born with disease. This is the product of womb environment, either as to nutrition or as to infection. Congenital syphilis or tuberculosis results from infection of the child by the mother. The all-important point here is, therefore, to strengthen the child by strengthening the mother. The false doctrine that heredity is a destiny which must be, not a prophesy of what may be, should be fought by the profession. As to heredity, the profession should not hold that

Star-eyed science has but wandered there
To bring back tidings of despair.

Good maternity and good environment during pregnancy can overcome paternal defects.

In English-speaking countries, little can be done by law. Many contradictory Supreme Court decisions create doubt as to the right of the state to interfere with the pregnant woman working in dangerous trades. Under the plea of personal liberty, she is by these deprived even of dam-

ages for injury. Theoretically, even in English-speaking countries, the state has here the right of eminent domain. Practically, the regard for property rights prevents the judges from recognizing this right of eminent domain. In this particular the civilized state falls behind those primitive communities whose taboos protect the unborn child. In Belgium and France public opinion has forced what is practically recognition of these taboos. Many employers of labor there guard their pregnant employés. The French and Belgian employers have placed these questions under control of physicians, whose directions are followed. The feeble imitations of these in the United States are but too often placed under trained nurses, whose chief idea is prescription of headache powders, cathartics, emmenagogues, and alleged tonic mixtures, often containing cocain, or of cough mixtures containing opium. These practices illustrate the absurdity of placing non-medical people in medical positions. All such positions have a medical object which can be judged from the medical standpoint alone. So-called business management means, at the best, parsimony, fatal to their object, or, at the worst, wanton misuse of funds. The true business man here is a physician, since the business is purely a medical one. A hospital or hospital ship is intended for purely medical purposes; these are its supreme end; not economy at the expense of patients, or mere sailing. The recent sarcasms against command of a hospital ship by a competent naval medical officer were destitute of point and pith. Neglect to make medical officers supreme, as in the past, scourged such ships with pyemia, scurvy and epidemic disease.

The present widespread movement to create a national department of health is an expression of the need felt for regulated cooperation by the different states in interstate sanitation. For a time some twenty-seven years ago the national board of health did effective service in the suppression of epidemic disease and in sanitation of water-courses. These last can not be controlled under the constitution when they exist in different states. Whether, as was suggested by President Cleveland, the head of this department should be a cabinet officer, or whether, as suggested by President Roosevelt, he should be no more than a department head, is, for the time being, a matter of little importance, so long as the department is created. Under the old national board of health every emigrant entering the country was vaccinated, and the vaccination was inspected until he reached his destination. The issue whether such vaccination was legal or not was not raised by either the emigrant societies, the steamship companies or the railroads, who all cooperated in the work of the National Board of Health. The position lately taken by the Illinois Supreme Court seems to have been regarded as untenable. School vaccination acts have been so repeatedly held constitutional that the late decision of the Illinois Supreme Court merely illustrates the tendency of judges to disagree.

The same imperative duty implied in guarding children antenatally is even more urgently required in the postnatal stress periods of childhood. The child labor evil is not a creation of the nineteenth century,

but this century was the first to recognize it as an evil. In the seventeenth and eighteenth centuries political economists looked upon child labor as an important source of national wealth. It is true that even then certain trades were looked upon as peculiarly injurious to children, but regard for vested interests prevented any interference with child labor. The influences which have prevented the enactment of a child labor law for the District of Columbia were then all potent. The value of a child labor law must depend upon careful methods of enforcement. Inspections made by laymen of the child and of the conditions under which he labors are very unsatisfactory.

Methods of ascertaining age are also very deficient in practical results. Were births properly registered, the law as to age could not be evaded by routine affidavits made by obsequious public notaries. Here the profession can with peculiar propriety exercise its great function of a public educator. The child labor laws depend upon enlightened public opinion for their enforcement. The beneficial effects of the enlightenment of the public by the profession are excellently illustrated in the widespread movements for the control and suppression of the great white plague, tuberculosis. The contagious nature of this is now generally accepted by the public, although the seventeenth and eighteenth century views of its contagion had fallen into innocuous desuetude elsewhere than in Italy. In Italy such views were prevalent in the first half of the nineteenth century, and produced the rather severe precautions taken in the case of the poet Keats, who died of tuberculosis. Similar views obtained in Spain and involved the musician Chopin, another victim of tuberculosis.

The interests of the public demand that no one should be permitted to practice medicine who is not so thoroughly trained in the medical sciences as to have a proper knowledge of diagnosis. It is obviously the duty of the state to require such a knowledge from all persons whom it permits to practice medicine.

In conclusion, the relation of the profession can be summarized as follows:

The profession is entrusted with the public health. To this it owes such privileges as are granted by law. Medical practice acts and sanitary legislation are for the benefit of the public and not of the profession. The great work of the profession, from the public standpoint, is preventive medicine. In this work vital statistics are needed, and the physician who neglects to furnish these is guilty of a gross breach of professional duty. The state has the right to require such statistics on that principle of eminent domain which makes public health the supreme law. Under this principle also the state has the right to guard its future citizen, prenatally and postnatally. To do this properly it must place medical men in medical positions.

SELF-ADMINISTRATION OF DRUGS; OR DOES IT PAY TO HAVE A DOCTOR?*

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At this annual meeting of the Illinois State Medical Society the committee having in charge the medical as distinguished from the surgical portion of the program, wisely decided to consider the subject of therapeutics. Too often physicians lose sight of the ultimate endeavor of their art, which is, first, to prevent illness if possible, and, second, to cure such illness when prevention fails. Principles for diagnosis and careful study of the agent causing disease of our bodies and the effects such agents have upon them are but the sign posts indicating the goal of endeavor; they are but the means to the end that the right remedy may be applied. The average individual always knows what the end to be attained is, but if he has not become expert in the art of reading the sign posts he can not travel on the right pathway to the goal of curing. It requires careful training to decipher the meaning of these mute and often obscure indicators, and not all licensed physicians learn to read them aright and with equal skill.

I.

The average American is accustomed to do for himself. We all dabble in things which we should keep out of, and try to do a little carpentry work or wall-paper hanging when we should be about our own business. Because of our independence and self-reliance and our daring to attempt, we lose sight of the great advantage of exchanging labor. Consequently we dabble in medicine and try to cure our cats and dogs and horses and stock, and by a very easy gradation we are emboldened to try to cure ourselves. Plenty of medicines are at hand, with directions for using them and statements as to what diseases they are "good for" (though, as a rule, in order to increase their consumption and sale, they are said to be "good" for at least forty different ailments named in the accompanying circulars or upon the labels). Why not save the fee asked by the physician and take the remedies we think we know all about without the intervention of a prescription? And possibly, too, the prescription might call for the very thing we ourselves would select from among the numerous things brought to our notice by the advertisers, because even some physicians are known to prescribe proprietary remedies. So by a very simple process of reasoning we go to the drug store, buy our particular brand of dope and swallow it.

What do we buy? We buy a patent medicine, that is, a medicine the process of making which is not patented but the name of which is copyrighted and so protected by our government. (Think of the frauds so "protected"!) It does not matter to us whether it has some such fantastic name as "Brane-fude," though we ought to regard such spelling as an insult to our understanding: or "Shac," which latter means

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Stearn's Headache Cure, made and advertised by a well-known drug company. All we want is something to take, and we calmly pay no attention to what it is or how it is compounded. Was ever faith of child so simple as ours? What else would we purchase so unsuspectingly?

Where do these patent medicines come from? Some are time-honored, indeed dating back to medieval times, for quacks learn traditional quackery in the school of quacks, and old remedies, like old folklore stories and children's games and the Mother Goose melodies, last on through the centuries with but little change. Once upon a time arsenic was advocated as a caustic for bringing about the death of tissue supposed to be cancerous, but this was in the fourteenth century, as recommended by Guy de Chauliac.¹ When medical men abandoned it in the ancient past as of no value, the quacks took it up and made a cancer paste of it for "killing the cancer and drawing it out by its roots." Haarlem oil is another foolish survival of a medieval remedy, and the circular accompanying it still bears printed on it its ancient testimonials and alleged remarkable cures. So great is its traditional hold upon the people that I presume it will survive another hundred years.

A historical summary of the patent medicine evil in the United States may be of interest. It was really not until 1870 that patent medicines secured a firm foothold in this country. Before that time newspapers were few and expensive, and the people did not buy them freely; type was hard to set up, and advertising in the papers was costly. Hence the early advertising was done by traveling shows, Hamlin with his Wizard Oil, an old-fashioned remedy bequeathed to him by his father, who in turn received it from nobody knows whom, achieving quite a noteworthy success, his experience paving the way for his subsequent theatrical ventures. But as the art of printing was developed, the stereotype and the linotype invented, with consequent decrease in cost and increase in size and circulation of the newspapers, and as magazines and weeklies came into vogue with rapidly rising circulations, the patent medicine advertising soon became a prominent feature—for the life of the patent medicine is in the advertising. So rapid has been the growth of the patent medicine business that the value of its annual product was placed in the census of 1900 at \$59,611,355, and it is likely that to-day the retail cost of its product is \$100,000,000. Every cent of this money is wasted by the people—thrown away outright—their testimonials to the contrary notwithstanding.

This trade of patent medicine has not only penetrated to every nook and corner of the United States, but American nostrums have invaded England, Germany, France and Austria. It makes me blush as an American to read in the *British Medical Journal* of Aug. 31, 1907, the article on the "blood purifiers," among which Munyon's Blood Cure and Hood's Compound Extract of Sarsaparilla are mentioned. Quantitative analysis of Munyon's blood purifier, which was advertised to eradicate all impurities from the blood, "cure scrofulitic eruptions, rash on the

1. Jour. A. M. A., 1907, xlix, p. 2090.

scalp, scald head, itching and burning, and any form of blotchy, pimply or sealy skin," showed it to contain no other ingredient than sugar. And Hood's Sarsaparilla (good for everything, so that they even put it on barns, as you probably remember from your railway travels in the time when farmers helped along the patent medicine business by permitting their barns and sheds to be disfigured with big signs) was found to contain nearly 208 per cent. of alcohol, $7\frac{1}{2}$ grains of potassie iodid to the ounce, and small amounts of vegetable residue, possibly extracts of sarsaparilla, dandelion, dock, juniper berries and other things claimed as ingredients of the remedy. Of course none of these vegetable extracts has the slightest curative value. And *Truth*, which annually issues a "Cautionary List" of various organizations, persons or firms engaged in the business of faking, says in regard to fifty-two reports made by it on medical quacks and quackery: "The number of these is a remarkable tribute to the gullibility of the British public, and the almost equally remarkable exhibition of carelessness on the part of proprietors of newspapers and magazines who assist them in predatory frauds. A large proportion of the names are of transatlantic origin." Prominent among them are Ligozone and the remedies of the Viavi Company. Germany, too, has been invaded by hosts of American fakes, notwithstanding the hard blows they receive. Ayer's Cathartic Pills, Beecham's Pills, Battle's Bromidia, Warner's Safe Cure, and many others have found their way to the place where medical knowledge is perhaps most highly developed.

Indeed, so vigorous a growth in America and so aggressive a trade in exporting these articles was made possible only by an organization of the patent medicine interests, called the "Proprietary Association of America." This association was formed "to protect the rights of its members to the respective trademarks that they may own or control; to establish such mutual co-operation as may be required in the various branches of the trade; to reduce all burdens that may be oppressive; to facilitate and foster equitable principles in the purchase and sale of merchandise; to acquire and preserve for the use of its members such business information as may be of value to them; to adjust controversies and promote harmony among its members." Thus the official records read, but the real purposes of this organization thus euphemistically expressed will subsequently become evident.

Patent medicine men exploit their wares in four chief ways: (1) by advertising in newspapers, weeklies, magazines and popular periodicals on the one hand, and in medical journals on the other; (2) by agents who are usually at the same time testimonial writers; (3) by distributing free samples to the people; (4) by circularizing the thousands known to have a penchant for patent medicines, thus using the United States mail service to spread the evil.

1. The advertising paid for by the patent medicine men appears in nearly every newspaper, magazine, journal or weekly published in the country, although at last a small number of hardy editors are beginning to realize the harm they have done in the past by their acceptance of the tainted money paid them, and they are now refusing longer to lend

themselves to the perpetration of a fraud. The cost of this advertising is huge. The chief cost to a patent medicine man is the cost of distribution, not the cost of manufacture of his product. It is estimated by F. J. Cheney of Hall's Catarrh Cure fame that the members of the Proprietary Association of America expend annually \$40,000,000 for newspaper advertising, which, divided equally among the 20,000 publications in the United States, would give to each an annual subsidy of \$2,000. The Lydia E. Pinkham Company is said to expend \$100,000 per month. The publications receiving this huge annual subsidy are in no hurry to kill the goose that lays the golden egg. They see no reason why they should expose the indecency and mendaciousness of the patent medicine when their attention is called to its fraudulent character. A few courageous editors are found who not only refuse advertising from patent medicine men, but even expose their methods. It is, indeed, a hopeful sign that two Chicago newspapers dared to print the following from the lips of Judge Landis: "Insofar as the newspapers permit these suggestive and deceptive advertisements to be scattered broadcast among young boys and girls to their detriment, my limited vocabulary is bankrupt to express my contempt for them, whatever they be or wherever published. I may say that the government officers may do well to consider and take action with reference to those papers which are admitted to the mails and contain these demoralizing advertisements. The real offender is the publisher of the paper whose press continually revolves and sends out these nasty sheets, to go into homes throughout the land."²

Just as metricious as the ordinary daily is the religious weekly. Not all religious weeklies sell advertising space to fraudulent medicine concerns, but most of them do so. Fortunately the latter are beginning to wake up to their faults, though it is far into the day. Thus the Miami (Ohio) Presbytery, April 3, 1907, after referring to the "immoralities and fraudulent practices" in the patent medicine business as conducted by the Proprietary Association of America, went on record as follows: "Being convinced by evidence furnished by those qualified to speak on the subject, that practically all medical advertisements appearing in religious papers are grossly exaggerated, misleading and fraudulent, and can not consistently with the purposes of such religious papers be carried by them, we, therefore, wish to record our unqualified condemnation of the practice of such publications in thus transcending their province and impairing their influence by selling space for such deceptive and fraudulent advertisements, and we recommend and urge editors and publishers of all our publications to exclude all such advertisements. We are confident that the exclusion of such advertisements is not only expedient but right." Similar resolutions have been passed by several other presbyteries in Ohio, and the General Assembly of the Presbyterian Church recommended that "fraternal council be sent to the publishers asking them to exclude from their columns all advertisements of patent and proprietary medicines suspected of being fraudulent."³

2. Chicago Tribune, Dec. 7, 1906, and also the Chicago Chronicle.

3. Jour. A. M. A., vol. xlix, p. 54.

Many religious journals assume an air of injured virtue when reproached for the character of their advertising and call attention to their claim of refusing many thousands of dollars of such advertising each year. And yet these same journals print the advertisements of such rascals as the Oren O'Neals and the Doctors Bye of Cancer Cure Ill-Fame, and of such patent medicines as swamp root and Hall's Catarrh Cure. And often these self-same journals merely make a virtue of necessity, and boast of refusing stuff that neither they nor any other self-respecting people would dare to publish. Religious journals boast that they do not accept the advertisement of Duffy's Malt Whiskey because of the word whiskey; but it is said that were this offending word to be dropped and the stuff called merely Duffy's Malt its advertising matter would be as welcome as that of Peruna, the famous whiskey substitute so affected by ministers as their favorite medicinal beverage.

Not only do the journals print the advertisements, but they endorse them by calling attention to the fact that only reputable and honest wares can be exploited in their advertising columns. Indeed, they go a step farther and write editorials of commendation. The limit of inconsistency is found in the *Baptist Flag*, published in Fulton, Ky. In its "Home Circle" department is an editorial descanting upon the necessity of clean reading for the young, and a warning is sounded against those publications which "taint the imagination and allure the weak and unguarded from the paths of innocence." And an advertisement on another page appears with the headlines: "Weak Man Receipt Free." The advertisement goes on to offer a free prescription "in a plain sealed envelope to those who are suffering from the results of excesses, dissipations, unnatural drains, or the follies of youth." On the same page is another advertisement of a "simple home remedy" and the offer of a book with explanatory illustrations showing why young women suffer and how they can easily cure themselves at home without the aid of a physician. Can any sane adult fail to grasp the meaning of these two advertisements?⁴

The farm journals are also exploited by the patent medicine men. It is a pleasure, therefore, to know that the *Farm Journal*, the *American Agriculturalist*, the *Orange Judd Farmer*, and the *New England Homestead* have together since 1902 refused some \$50,000 worth of advertising of patent medicines, and that the *Farm and Home* has rejected about \$60,000 worth during the same period.⁵ This reform has also reached the fraternal journals. Very gratifying is it to learn that the editor of the *Modern Woodman* has done away with all contract patent medicine advertising since December, 1907. Such a decision is wise, in that the avoidance of patent medicines and the securing of competent medical advice lessens the death losses among fraternal insurance organizations. The official organs of the labor unions, however, are still guilty of harboring these advertisements. As to the medical press, little need be said upon this occasion, but as a physician I am obliged to confess

4. Jour. A. M. A., vol. 1, p. 1281.

5. Jour. A. M. A., vol. 1, p. 535.

that there are many men in my own profession, owners of medical journals, who are as meretricious as a *demi-mondaine*, and who will do anything and publish anything for money.

2. Patent medicine men also spread abroad their wares by agents who are at the same time testimonial writers, and by printed testimonials. Testimonials form a large part of the patent medicine man's armament. Easy as it is to get these, they may be plagiarized, such a case being reported in the *Journal of the American Medical Association*, vol. 50, p. 1440. A testimonial originally praising a forgotten remedy called "hygiama" was used with the substitution of "visvit," thus making an old testimonial serve a new remedy. Ordinarily, however, there are enough preachers willing to be bribed by some means or other to give a testimonial. Most patent medicine men and quacks find it expedient to belong to a church, and by giving up some of their ill-gotten gain they easily secure from their morally weak and morally cowardly pastors testimonials for almost anything. This method of securing testimonials is only slightly less direct than obtaining them from politicians, congressmen and judges by direct purchase. It would, indeed, be a matter of interest to learn the consideration which induced a prominent admiral to give Peruna a letter of recommendation.

Not all testimonials come high. Many are secured by free medicine for a stated time; and when the value of the medicine is less than the value of the bottle and cork, as is true of one much-advertised fake remedy, the cost of such testimonials is, indeed, trivial. I know of a woman who had consumption treated by the Koch people of Chicago before they went out of business. This woman gave the Koch concern a testimonial stating that she had been cured. The consideration was medicine free for a few months. If cured the cure was evanescent, for she died of the disease within a few months of the time she gave the testimonial. I know also of a girl who wrote such a testimonial for a consideration, and who was paid 25 cents for every letter she wrote to inquirers after the remedy in question. Thus she became the agent of the company. Hundreds of such agents exist, and when a poor, deluded mental derelict writes to one of these agents in good faith he is giving excellent evidence of his dementia. Belonging to this class is the man who advertises that he was cured, we will say, of locomotor ataxia, and that he is willing and even anxious to tell all sufferers from that disease the name of the remedy which cured him. That man is invariably the agent of a fraudulent medicinal firm, or else he is only a dummy.

Testimonials from preachers, politicians, lawyers, congressmen and judges are to be expected, I presume, but what shall be said of testimonials from physicians? It is strange that a patent medicine man, publishing numerous testimonials of failures to cure by prominent physicians, should turn to physicians for letters of endorsement, but by reason of this curious psychologic contradiction of action so characteristic of the human individual he does do so. And though he openly and vigorously attacks the physicians as a whole, he welcomes with open arms that individual physician who will write him a testimonial, and he publishes

it broadcast, thus inadvertently admitting after all his belief in medical men.

Free samples of patent medicines are still distributed from doorstep to doorstep, though this method of exploiting patent medicines is in its decadence, just as is the traveling-show method of advertising. The city council of Streator, in this state, has an ordinance prohibiting not only the distribution of samples of patent medicines or nostrums, but also the distribution or posting of hand bills or other advertising matter referring to patent medicines in any street within its corporate limits. Rochester, N. Y., has a similar ordinance. Every city in the land should be equally favored and the law should be rigidly enforced.

4. Of late the patent medicine men have taken to circularizing the public, particularly those who have a leaning toward the patent medicine habit. If you have ever written a letter of inquiry to some patent medicine concern, and if you have believed that the contents of your letter would be strictly confidential, you are mistaken. Your letter is kept and sold to a letter broker. He collects these by the thousand and rents them to patent medicine concerns, who begin to address you, and so lead you to "try" first one thing and then the other; for if the patent medicine man can induce even 1 per cent. of the inhabitants of this country to try one bottle each at \$1.00 his fortune is assured. These letters, "strictly confidential," are even sold to fortune tellers, who in a trial reading by mail astonish such of you as patronize them (and they are just exactly as good as patent medicine men) by repeating back to you in paraphrased and mystic wise the contents of your forgotten letter.

Of late the United States government has been paying more attention than it formerly paid to the abuse of its mail service by fraudulent concerns. Last September (1907) the Postoffice Department at Washington barred from the use of the mails some twenty different remedy companies, quack doctors and medical institutes located in Chicago. If our State Board of Health would exert itself in the matter of securing sufficient evidence to lay before the authorities at Washington it could undoubtedly do much to purify Illinois of some of its present evils by closing the mails to them. For the Postoffice Department has shown a disposition to deal rigidly with the fraudulent.

The Proprietary Association of America, we have learned, was formed for the purpose, among other things, "to acquire and preserve for the use of its members such business information as may be of value to them." This means a great deal. As may be imagined, the easy money hitherto obtained by the patent medicine men began to attract the notice and arouse the cupidity of certain blackmailers in state legislatures. Hence inimical bills were constantly originating in various states, so that a legislative bureau had to be established by the Proprietary Association for the express purpose of dealing with legislative problems. Up to a few years ago this legislative bureau expended annually about \$75,000, this money going to prevent hostile legislation proposed for blackmailing purposes. But F. J. Cheney, of Hall's Catarrh Cure, hit upon a plan which not only muzzled the press, but even enlisted it in his

favor. Cheney found that the 20,000 publications in the United States were really owned by those who paid for the advertising in them. He, therefore, proposed that there be inserted in bright red ink across the printed contract for advertising space the clause: "It is agreed in case any law or laws are enacted, either state or national, harmful to the interests of _____, that this contract may be canceled by them from date of such enactment, and the insertions made paid for pro rata with the annual contract price; also in case any matter otherwise detrimental to the company's interests is permitted to appear in the reading columns or elsewhere in the paper." On the face of it, this "red clause" seems to be merely a means of cutting off expense in the event of unfavorable legislation. But that is not what it is for. It is to prevent unfavorable legislation; and it accomplishes its purpose by getting the press to work in its favor, notifying the publisher either by mail or by telegraph of the necessity of favorable legislation, if advertising patronage is to be continued. Do the newspapers publish facts derogatory to patent medicine concerns? No, indeed! On the contrary, they obediently fight for the Proprietary Association which, when it buys advertising space, buys the publisher as well, body and soul. Thus the famous red clause is the signal for silence of criticism and for active aid for the Proprietary Association when the people are assured against it. The venality of the American press is a burning shame, and our nation does not deserve to be thus disgraced by some of its citizens.

Is the man who thus bribes the press an honorable man? Is any manufacturer of a patent medicine an honorable man? In my opinion, he is not. If a remedy is found that will help the sick, it should be freely offered to the people. Laws should not permit the patenting of processes of manufacture, or safeguard copyright names of medicinal preparations. There never was a patent medicine devised for any other purpose than as a means for making money; else it would not be "patented." Remedies devised to cure without monetary consideration are never secret, with copyrighted names. Patent medicines, being, therefore, primarily devised for the purpose of enabling somebody to make a lot of money, are made in such wise as to make the most money. Hence in many instances the chief cost to the patent medicine man is the bottle, cork and wrapper, rather than the contents. Or, if the contents be of any value, the value lies wholly in the alcohol contained in the alleged medicine.

How can the self-administration of such drugs bring about favorable results? In the first place, can an average individual make an accurate diagnosis of his own case? Physicians can not, and when ill they place themselves under the care of their fellow-practitioners. All diagnoses made by the people are based upon symptoms alone, and so fallacious are symptoms in their meaning that physicians have largely abandoned them in favor of objective physical signs of disease. No physician for a moment presumes to make a diagnosis of disease of the kidneys from the symptom of backache; yet the patent medicine men teach the public that an ache in the small of the back always means kidney disease—except in

the case of Lydia E. Pinkham's remedy, where such backache means an entirely different thing. I am here reminded of an incident within my own experience. A lady came to me for a difficulty with her bladder. Before coming she had been seen by one of the women working for the Viavi Company which, I understand, has been driven out of California. She said this woman asked her for her symptoms which she gave as a burning sensation in her legs at night, so that the covers had to be removed. "You don't need to say another word," promptly rejoined the Viavi woman. "I know exactly what ails you." "Do you?" said my patient. "For if you do, my husband had the same thing for more than ten years." This experience led her to the conclusion that the Viavi Company was a fake, a conclusion further established by her daughter, who wrote to her to have nothing to do with it, because she had fooled away two years' time and a lot of money upon it.

Biliousness is a familiar disease, to judge from patent medicine advertising, but the word has long since disappeared from medical books as a meaningless term, dating back to the time of the pathology of humors of the eighteenth century—another instance of the revival of abandoned medical knowledge among the quacks at a later period. The people are firmly of the opinion, too, an opinion carefully fostered by the patent medicine men, that numerous skin diseases mean a disordered blood; whereas the physician well knows that only the skin itself is diseased, the blood being in a healthy condition. Thus spring tonics and "blood cleansers" are regarded by many of the public as essentials, but by the trained physician as absolutely nonsensical preparations.

So fallacious are mere symptoms that physicians will not make a diagnosis without examining the patient; yet patent medicine men give the people to understand that symptoms are all important, and blanks of symptoms to be filled out are supplied to prospective dupes. I doubt not that some of these blanks are filled out with scrupulous conscientiousness and exactness, possibly after much thought and careful deliberation. How pathetic it is that a printed letter should be returned with a word or two filled in with ink in blank spaces left for the purpose in the printed form; and how very much more pathetic it is when such words are filled in by some clerk of meager education. I know of one instance, in which a girl who consulted me about her mother's health calmly told me she worked for a patent remedy concern, and that she read these letters and herself sent back remedy No. 1 or No. 2 or No. 3, as the whim struck her. Can the self-administration of patent remedies be of value when we consider that the remedies themselves are primarily for the purpose of enriching somebody, that they are as a rule worthless, and that they are taken for a disease which the patient thinks he has, but which he does not have? And even assuming that the patent medicines have some medicinal value, can the self-administration of these remedies count for anything when the person who takes them does not know what ails him, but merely guesses at it?

Think of the economic loss in cases treated by the self-administration of patent medicines! Think of the time wasted upon them and forever

lost, where time is so valuable an asset in effecting a cure! Think of the patients with pulmonary tuberculosis who have frittered away valuable weeks and months on Piso's and Slocum's Consumption Cure, till the disease has so fastened itself upon them that it can not be pried loose! Think of the deaths ascribable to these awful remedies of destruction, and the devilish character of the deception! The patient is lured on by false promises and hopes until it is too late to cure him, and he dies. Think of the victims of cancer, of the immense suffering needlessly borne because of lack of competent medical direction! And think of the immense monetary loss, estimated at \$100,000,000 per annum, wrung from the poor, those least of all able to stand this huge assessment! And to this one hundred million of dollars add another hundred million of death and disability losses by reason of taking patent medicine. In the light of these things, does the self-administration of drugs pay?

II.

Let us gracefully grant at once that it does not pay to administer drugs to one's self. There still remains the question as to whether it pays to have the doctor. Roughly there are two great divisions of physicians, the non-ethical or the quacks, and the ethical or regular physicians. Of these the quacks come from everywhere. Some of them have no medical education whatever, but boldly assume the title of doctor until compelled by a state board of health to abandon it. Many other quacks are really graduates of medical schools. How does this happen? It is due to the fact that there are still in existence many medical schools privately owned or a stock company business, and run for profit. Such is the case with almost all of the thirteen Illinois schools. A medical school conducted for profit is profitable only when a sufficiently large number of medical students are in attendance upon it. Hence there is a tendency to take any man who offers himself as a student, neither his personal character nor his preliminary education entering into the question as to his admission to the course of study in medicine. Colleges of liberal arts can not take every one who wishes to enter them, but medical schools of a certain type can. Thus it is that many slip into the medical profession, although most unworthy of the name of the high calling of doctor; and indulgent state boards license them to practice medicine on the only basis they know, the basis of bluff and deception, for profit only, not for the alleviation of suffering. They were educated upon a commercial basis in a medical school operated for profit by a set of hypocrites pretending to be ethical, and it is not strange that when they graduate they also begin to "operate for profit." And to these cheap and ignoble medical schools the rascals flock, for they know that they can put in the time required by law upon the study of medicine, then get a degree and a license to practice.

How can you tell a quack when you see one? What are his earmarks? The first mark of identification is his advertising methods. How many in this state of Illinois ardently defended the Keeley cure as a great and beneficent discovery, and hailed Dr. Leslie Keeley as one of the great

physicians of the state, a man engaged in a great and glorious work of reclamation in the arid lands of outcast humanity! Yet when the inside history of the "Keeley Cure" was cruelly dragged to light in a recent lawsuit in Tennessee the truth came out, the glamor was gone, the "cure" stood forth a confessed swindle, and the alleged great physician behind the scenes emerged as a mere advertising quack, to whose company the United States court refused the protection of the law because of its fraudulent character. The United States Court of Appeals, in reviewing the testimony, says that the fraudulent misrepresentations relied upon by this company were numerous. The main one was that gold was the principal ingredient and effective remedy in the "Keeley Cure," whereas no gold was to be found in it. "It was not disputed that the appellee (the Keeley Company) represents to the public that gold is the principal ingredient and effective agent in its remedies. So distinct, so repeated and emphatic has been and is its representation to this effect that it must be held that its business has been built up and is being maintained by this representation. The name which it has given its remedies and by which it is known is the 'double chlorid of gold cure.' There is no such substance as the double chlorid of gold."⁶ The court record of the trial contained positive evidence to the effect that the claim that gold is to be found in the remedies is untrue, and that it was known to be untrue. Dr. Leslie Keeley was a common, ordinary quack with a useless remedy which made good by advertising and catching suckers. He has been singled out as an illustration of the advertising quack because of his prominence.

Another earmark of the quack is bombast and ignorance, of bluff and of contempt for true medical learning. Thus Paracelsus, the first and foremost quack in the history of medicine, Theophrastus Bombastus Paracelsus, showed his contempt for true medical knowledge by burning the works of Avicenna and Hippocrates, and his ignorance when he attempted to lecture to medical men upon medical subjects because, being a poor student, he was obliged to use his own vernacular rather than Latin, which scholars then universally used. And from the time of Paracelsus to the present time quacks have been derived almost wholly from the ignorant. I myself know of a quack in Chicago who runs a rheumatism cure. He struts around in a plug hat, and on warm summer evenings he may be seen in his shirt sleeves, but still faithful to the plug hat. This man was once a blacksmith in New Orleans, and several years ago he is reported to have purchased a fake diploma from a licensing mill.

As a rule, a quack has plenty of vanity. He pays great attention to his exterior, but none to his gray matter. He wears a frock coat, carries a gold-headed cane, wears a big diamond in his shirt front, and massive gold seals on his chain. His language is as high flown as his dress. He is apt to indulge in high-sounding but meaningless words to his patients, his one anxiety being to impress people with his greatness. Egotism appears in every word and movement. He affects, like Paracelsus, to ignore the ethical and trained physician as vastly his inferior; and he

throws out side remarks to his patient about the ignorance of all other doctors and his own omniscience. He assumes titles, particularly the title of professor, asserts that he is a graduate of all well-known medical schools, and that he has been "on the staff of the leading hospitals" without specifying their names. Sometimes, like Rupert Wells, the man who places most of his advertising in religious journals, he appoints himself professor of something or other in an imaginary medical school of his own contriving; and thus having acquired his title prints it thereafter before his name.

Perhaps the leading trait of a quack is his mendacity. All of them are liars, in good, plain Anglo-Saxon. They agree to straighten crooked eyes without the use of the knife (they use scissors), to cure cancer by pastes, to snatch people from the grave on the very brink itself. They guarantee to cure incurable diseases. Though they have never discovered a single medical fact, they assume to lay down the law in their advertising for the whole world. And when they find a victim they will wheedle and cajole the last cent away from him. What medicines do these quacks use? Secret remedies of their own compounding and dispensing, of course. And you may rest assured that, though you pay five dollars per bottle for the dope, it is not worth five cents. The quack is after money and profit and suckers.

How looks the picture of the ethical man? I wish I might draw him in his many types, the noble Ian MacLaren type, the genial scholar like Oliver Wendell Holmes, the patriot like Benjamin Rush. He is a student and has always been a student. His preliminary education is extensive, his preparation thorough, his study of medicine conscientious, for he realizes the lives dependent upon him. He pays no heed to money. Money comes to him usually, but he is not a money-maker, and the recompense is his least thought. His honest endeavor is to do the best he can for each patient, in the charity hospital or in the rich man's home. He gives his time abundantly to God's poor and even to the devil's poor; and he sits up nights trying to devise means for diminishing sickness and disease, thus undermining gladly his own prosperity. The diminution of disease in Chicago in a decade has been very great. Why? Simply because of the work of physicians. Is such a set of men a commercial set? All honor to the medical martyrs who have even given their lives that disease may be stamped out. Yellow fever has nearly disappeared from Cuba, but it demanded its toll of blood from a physician before it faded away from men. Does it pay to have such a physician for your family physician? Or do you prefer the quack?

What can the people do about patent medicines and quacks? They can see to it, first, that laws are enacted suppressing these evils, and, secondly, that they are enforced. Laws regulating patent medicines should be passed in every state in the union. All we want is a square deal, a statement of facts as they are, without misrepresentation. There should be no secrecy or mystery about a patent medicine. The formula should be stated accurately upon the label, and the percentage of each ingredient should be given. The patent medicine men do not favor this

suggestion, for mystery is their chiefest asset. Liquozone, or "liquid oxygen, that is all," has an air of mystery about it. Of course, the public never happened to hear that there is such a thing as liquid oxygen, but they swallow the suggestion, like a bull-head, clear to the tail. But Liquozone as a very dilute mixture of sulphurous and sulphuric acids, worth possibly two or three cents per bottle to reproduce, disenchant, and we do not care to give up fifty cents for it when the mystery is removed. Hence the patent medicine men bitterly fight any suggestion that laws be enacted requiring the publishing of the formulæ of patent medicines, but their fight should be ignored. It is the people who are to be protected, not the patent medicine crowd. No other measure than that of publicity is needed. Get the rats out into the open where they can be seen, and they will be quickly exterminated. Of course, the closure of the mails to all the patent medicine frauds, and the refusal on the part of papers to accept advertising from patent medicine concerns, would greatly facilitate the disappearance of patent medicines.

How can the quack be prevented, or at least greatly reduced in numbers? Very easily, indeed! If the people will pay some heed to the question of the quality of medical schools, to the question as to whether they are stock companies conducted for profit, to the question as to who are to be admitted as medical students, 98 per cent. of the quacks now annually entering the ranks of the ethical men would be prevented from so doing. And the other 2 per cent. could be kept out by our state licensing boards. What we need in Illinois is, first, a vigorous weeding out of bad medical schools, of which we have our share; secondly, care in the admission to the study of medicine of those presenting themselves; thirdly, a carefully conducted medical course in the medical school, and, fourthly, a state licensing body fearlessly doing its duty. There might well be added a fifth needed thing, namely, a law permitting the revocation of a license to practice when the license is abused. These are simple things, publicity about patent medicines on the one hand, and decent medical schools, with competent state licensing boards, on the other hand; yet carefully worked out they will save the nation \$100,000,000 a year directly and \$100,000,000 indirectly, besides untold suffering. Let us give heed to our health laws!

THE IMPORTANCE OF EARLY DIAGNOSIS AND PROMPT SURGICAL TREATMENT OF INJURIES TO THE DIAPHRAGM.*

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Injuries to the diaphragm are among the most serious wounds the surgeon is called upon to treat. Such injuries, involving, as they do, both the pleural and abdominal cavities and associated, as a rule, with

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serious damage to the peritoneal viscera, present problems which invariably tax both the diagnostic and operative skill of the surgeon. Injuries of this character are far more frequent than is generally supposed, and they give a mortality which conclusively proves that their early recognition and prompt surgical treatment has not received from the profession, the attention that its importance demands. In a paper read before the American Association of Obstetricians and Gynecologists in 1906 the writer reported a series of eight cases in which operation was done for the relief of complicated wounds of the diaphragm. In view of the fact that the literature on this subject is exceedingly limited, I may be pardoned if I quote liberally from this article, as the conclusions here arrived at are largely based on the cases then recorded with four additional ones to be here reported. The German, English and American writers all advise that, unless there are special indications present, and these indications are given as active hemorrhage from the internal mammary or intercostal arteries, penetrating wounds of the chest should be left alone. In wounds of this character, involving the upper thorax, such advice is sound, but in wounds below the fifth rib the possibility of injury to the diaphragm, with associated damage to the abdominal viscera, should always be carefully considered.

Concerning the diagnosis and treatment of such injuries our textbooks teach little, and with the exception of a few cases scattered through the literature most of our knowledge of such wounds has been obtained at the autopsy table. Liechtenstern collected 250 cases of traumatic diaphragmatic hernia. In only five of these was the diagnosis made before death. Lachner reviewed 266 cases, in only 7 of which was an antemortem diagnosis made. As acute diaphragmatic hernia, unassociated with injury to the abdominal viscera, is a most favorable condition for surgical interference, it is reasonable to assume that many of these cases could have been saved had an early diagnosis been made and proper surgical treatment instituted. A number of cases have been recorded where, at autopsy, the stomach, with a part of the large and small bowel, has been found in the pleural cavity uninjured, the patients dying as the result of acute strangulation. The surgical treatment of such cases should give a comparatively low mortality.

Enumerated in the order of their frequency, injury to the diaphragm is generally the result of (1) penetrating stab wounds, (2) penetrating gunshot wounds, and (3) severe abdominal contusions.

In 536 cases of penetrating gunshot and stab wounds of the abdomen and chest coming under the personal care of the writer and his former associate and successor at the St. Louis City Hospital, Dr. Walter C. G. Kirchner, we have operated for injury to the diaphragm, associated with damage to the abdominal viscera, 12 times. Eight of these cases were the result of penetrating stab wounds of the chest and abdomen, 3 of penetrating gunshot wounds of the chest and abdomen, and one due to severe abdominal contusions. Of the 12 cases, six died and six recovered. In two of the fatal cases (one a stab wound penetrating chest, diaphragm and stomach, and one a gunshot wound of the chest, perforating dia-

phragm and stomach), the diagnosis was not made until widespread peritonitis had developed. One (a stab wound of the chest, diaphragm and stomach) died on the second day. Autopsy showed no peritonitis, stomach wound completely sealed, death resulting from inflammatory change in lung and pleura. In one (a stab wound of the chest and diaphragm, complicated by an old diaphragmatic hernia) death was due to shock a few hours after operation. The variety of complicated conditions met with in this interesting series of cases present many points of surgical interest, which I will endeavor to bring out in this report. In one, a penetrating stab wound of left chest, diaphragm and stomach, death on eighth day—pneumonia. In one an incised penetrating wound of chest and diaphragm, incised penetrating wound of the abdomen (see report), death on the fifth day from pneumonia. Of the six cases that recovered, the following conditions were found at operation:

CASE 1.—Penetrating stab wound of left chest and diaphragm, small wound of spleen, prolapse of small bowel and omentum into pleural cavity. Laparotomy. Thoracotomy. Suture of diaphragm. Recovered.

CASE 2.—Severe abdominal contusions. Rupture of liver, spleen and diaphragm. Suture of liver. Splenectomy. Wound in diaphragm not repaired. Recovered.

CASE 3.—Penetrating gunshot wound of chest, perforating diaphragm, prolapse of omentum and small bowel into pleural cavity. Laparotomy. Thoracotomy. Suture of diaphragm. Recovered.

CASE 4.—Penetrating stab wound of chest, penetration of diaphragm and injury to the left kidney. Thoracotomy. Suture of kidney and diaphragm. Recovery.

CASE 5.—Penetrating stab wound of left chest, cutting diaphragm, with prolapse of small bowel into pleural cavity. Bowel completely severed. Penetrating stab wound of abdomen, prolapse of stomach and omentum through this wound onto surface of abdomen. Wound in stomach. Suture of diaphragm and repair of injuries to viscera. Recovery.

CASE 6.—Penetrating gunshot wound of right chest. Wound of diaphragm, liver, stomach and transverse colon. Laparotomy. Recovery.

Simple wounds of the diaphragm are not in themselves dangerous to life. Many cases of this character, doubtless, recover without operation. Especially is this true of wounds of the right side, where the liver acts as a barrier against hernia. It is, however, not the injury to the diaphragm that is of first importance, but the associate damage to abdominal viscera and the possibility in every case of diaphragmatic hernia, with resulting obstruction. If we will consider that in all such cases we have to deal with not only a penetrating wound of the chest, but a penetrating and possibly perforating wound of the abdomen as well, the importance of early diagnosis and prompt surgery at once becomes apparent. In many of these cases, a correct diagnosis of the extent of the injury is arrived at with the greatest difficulty. That this is true the following cases clearly show:

CASE 1.—A well-developed, well-nourished woman of 18 years, weigh-

ing about 165 pounds, was admitted to the hospital, with the following history: She stated that she had partaken of a rather hearty supper, of which corned-beef hash was the principal dish; that, as it had made her a "little sick," she lay down on a couch, hoping that the rest would relieve her. While resting there her drunken husband entered and, standing over her, fired several shots into her body.

On admission to the hospital her condition was as follows: There was no pallor nor cyanosis; lips red. She was cheerful, complained of some little pain at wound of arm and at site of injury to back. Pulse 84, respiration 26, temperature normal. She vomited her supper, which was but little digested, and remarked that she felt considerably better. There was no blood in the vomitus. (I wish to call especial attention to this point.)

Physical Examination.—In the lower abdomen was a palpable, gravid uterus, abdominal walls soft, no tenderness, flanks not dull, liver margin not palpable and dulness apparently normal. Spleen not palpable, but dulness seemed somewhat increased. Chest well developed, expansion good and equal. Breath sounds normal, no areas of dulness. Pulse regular, equal tension, and volume good, rate 84. Apex beat about three inches to left of nipple line in fifth space.

Nervous System.—As noted. "Shock seems but a small factor here. She is in good spirits, stands examination of wounds exceptionally well."

Her wounds were as follows: On the right side of chest, about three and one-half inches to the left and about one and one-half inches above the nipple, was a small bullet wound with smooth margins, while about one-half inch below and to the outside of the nipple was a smaller wound. A probe showed wounds to be connected. At about the sixth rib, and a little to the left of the nipple line, on the left side, was a small, smooth-margined bullet wound; direction could not be determined. Wound enlarged, had little finger introduced, but direction of wound could not be ascertained. There was but little hemorrhage. Posteriorly at about the sixth rib and about two inches to the left of the vertebral column, was visible a palpable tumefaction, firm and hard. On deep palpation a bullet could be outlined. This was cut down upon and removed. Wound enlarged; direction was not made out. No fracture of rib evident. Some pain at this point. Wound was dressed in the usual manner, chest strapped, patient put to bed and ordered to be kept quiet. The nurse was instructed to watch the case carefully and to report any changes that might occur in respiration, pulse or temperature. Diagnosis: Gunshot wound of right breast, penetrating wound of left chest, left forearm and right arm.

At midnight she became somewhat restless. Pulse 102, respirations 32, temperature 99.8°. At 6 o'clock she was seen, and the following noted: Pulse 106, respirations 32, temperature 100.6°. She was resting quietly and said she felt "fine," although she had just vomited a quantity of light-green fluid, containing some undigested food, *but no blood*. There was some tenderness in upper abdomen, no marked muscular rigidity, some pain in left chest. Diagnosis was made of pene-

trating gunshot of left chest and abdomen, with possible perforation of stomach. She was immediately prepared and sent to operation.

Operation.—Abdomen opened through right rectus muscle. Diffuse peritonitis present, wound in diaphragm and two wounds in cardiac extremity of stomach. Wounds in stomach repaired with silk, suture of diaphragm made through thoracotomy wound. Irrigation of general peritoneal cavity. Rubber drain. Abdominal wound closed with silkworm gut. Death second day from peritonitis.

CASE 2.—A well-nourished, muscular negro, 28 years old, was admitted to the St. Louis City Hospital, with a penetrating stab wound of the chest, knife entering between the seventh and eighth ribs, in anterior axillary line on left side, which wound he had received in a drunken brawl one hour prior to admission. When examined at the hospital his temperature was 98°, pulse 86, respirations 24. He complained of some pain in left chest. Examination of chest negative. There was comparatively no shock, and to all appearances his wound was a simple one. Examination of the abdomen negative. Voided urine without difficulty. Urine clear.

Diagnosis.—Simple penetrating wound of chest. Wound was sealed and chest strapped. Twelve hours after admission patient showed unmistakable signs of beginning peritonitis. He was immediately prepared for operation.

Operation.—Abdomen opened through four-inch incision in the left rectus. Widespread peritonitis present. Wound in diaphragm found one and one-half inches in length, plugged with omentum. Large wound in cardiac end of stomach, through which stomach contents had freely escaped. Wound in stomach and diaphragm repaired. Irrigation of general peritoneal cavity with hot normal salt solution. Drainage tube inserted in vesicorectal pouch through stab wound above pubis. Abdominal wound closed with through-and-through silkworm gut sutures. Death sixteen hours later from peritonitis.

In neither of these cases was a correct diagnosis possible, without exploration. Had we assumed from the location of the wounds that in each injury to the diaphragm was present and promptly opened the abdomen, both cases would probably have recovered.

In a case operated on by my associate, Dr. Kirehner, and reported by him (*Inter-State Medical Journal*, August, 1906), an old diaphragmatic hernia was found associated with a recent wound of the diaphragm. This complication made the diagnosis extremely difficult. The injuries found at operation on this patient were very interesting, and, as I am able to present the specimen, which shows beautifully a true diaphragmatic hernia, I will report it at length.

Patient, a white male, aged 35, of medium stature, had received a stab wound of the lower portion of the chest in the mammary line. When he was received at the hospital there was no radial pulse, both pupils were dilated, the breathing was stertorous, and he was anemic, cold and in shock. Pressure over the abdomen was painful. There was evidence of severe intra-abdominal hemorrhage.

After the usual preparation, under ether anesthesia, the incision was enlarged downward, and it was found that the penetrating instrument had severed three ribs in the mammary line, cutting through the costal margin. The abdominal cavity was filled with blood, the spleen was slightly injured, but did not bleed much. The gastrocolic ligament was severed, and there was active hemorrhage from two vessels. These vessels were ligated. The omentum was not in its normal position, but instead was adherent to the diaphragm. On further examination, an opening through which the finger could be inserted was found through the diaphragm. An incision was made in the mid-axillary line through the chest wall, and by exploring by the pleural and abdominal routes a mass about the size of a pear could be felt in the pleural cavity. The omentum had ascended through an opening in the diaphragm into the pleural cavity, where it was confined in a sac. The hernia could not be reduced. A rubber drain was placed in the pleural cavity. The abdominal wound was closed with silkworm gut sutures.

The patient rallied somewhat after the operation, and remained conscious sufficiently long to state that he had, on a previous occasion, been stabbed in the chest. At autopsy the specimen of diaphragmatic hernia which I present was obtained. The hernial sac was 8 by 5 cm. and contained a great portion of the omentum which had become adherent to the neck of the sac. The ring would easily admit the finger. It is probable that the diaphragm was only partially cut through at the time of the first injury, and that this so weakened the structure that the hernia resulted, in which the sac was formed by the peritoneal layer.

In marked contrast to the difficulties encountered in arriving at a diagnosis in the cases above reported, the following cases are of interest, as in each the prognosis was easy:

A well-nourished, muscular negro, 29 years of age, was admitted to the hospital forty minutes after receiving a gunshot wound of the right chest, bullet entering between the seventh and eighth ribs in mid-axillary line. He was in profound shock and showed evidence of serious internal hemorrhage. While his wounds were being examined, he vomited quite a large quantity of blood and beer. A diagnosis of penetrating wound of chest, diaphragm, liver and stomach was at once made. Immediate operation under ether anesthesia. Median incision between ensiform and umbilicus. On opening the abdomen, the cavity was found filled with blood, the hemorrhage coming from a wound through the right lobe of the liver. A threaded catheter was passed through wound of exit in the liver to the wound of entrance, a gauze tampon was then attached to the catheter, pulled through this wound, readily controlling the hemorrhage. Two wounds in the stomach were found and one in transverse colon, both of which were closed with silk. As the wound in the diaphragm was small and well protected by the liver, and in view of the fact that the condition of the patient was serious, no attempt at closure of this wound was made. The peritoneal cavity was flushed with hot saline. The drain in the liver was brought out at middle of abdomi-

nal incision, which incision was closed with silkworm gut. Patient made a complete recovery.

In the following case, prolapsed omentum through the chest wound made the diagnosis patent:

A young man, 24 years old, a watchman by occupation, entered the hospital with a penetrating stab wound of the left chest. Wound of entrance situated between the ninth and tenth ribs, in the mid-axillary line. On examination, omentum was found protruding from chest wound. On introducing finger through wound in chest, a wound in the diaphragm, through which the small bowel had prolapsed, could be plainly felt. Patient was immediately prepared for operation.

Operation.—The abdomen was opened through the outer portion of left rectus muscle by an incision four inches long. A small wound in the spleen was found. No other injury to abdominal viscera. Two inches of tenth rib resected, wound in diaphragm sutured with catgut. Wound in pleura closed without drainage. Patient made a prompt recovery.

Injury to the diaphragm not infrequently results from severe abdominal contusions. The following case accentuated the importance of promptly exploring all such cases where injury to the abdominal viscera is suspected:

A laborer, 34 years old, was admitted to the hospital in a condition of profound shock. Shortly before admission he was knocked down by a wagon, the wheels of which passed over his body on a level with his ribs. He complained of great abdominal pain, abdominal muscles rigid, both flanks dull on percussion. A diagnosis of severe internal hemorrhage, probably due to rupture of the liver, was made. Patient was quickly prepared for operation.

The abdomen was opened through a median incision. Peritoneal cavity was filled with blood. Examination of liver revealed an extensive rupture of right lobe, extended from its lower border, three inches above, and well into the liver substance, hemorrhage severe. Wound in liver was quickly sutured with heavy catgut, hemorrhage being controlled without great difficulty. The spleen was next examined and found to be the seat of an extensive rupture, bleeding profuse. The left rectus was quickly cut across and the spleen was removed. A small laceration of the diaphragm was located high up in the dome of this muscle. With each respiration the noise made by the air entering the pleura could be distinctly heard. Copious irrigation of the general peritoneal cavity with hot saline solution was made. The abdomen was closed through and through with silkworm gut sutures. Patient recovered.

The following cases were exceedingly interesting, as in both the chest and abdomen were widely opened, permitting the operator to view the lung without difficulty. It is interesting to note that in neither of these cases was operation at all interfered with by the imaginary dangers of lung collapse and pneumothorax:

CASE 1.—A colored man, aged 23, laborer. Diagnosis: Incised, penetrating and perforating wounds of abdomen, incised wounds of

thorax, intestine, diaphragm and stomach. Entered the hospital suffering from the following injuries: 1. Stab wound of left shoulder just over the acromion process and down to bone, some bleeding, but hemorrhage not marked. 2. Stab wound of back in lumbar region. This wound did not seem to penetrate the abdominal cavity. 3. A stab wound three inches long in the left side just above the lower costal margin, which entered the abdominal cavity by cutting the diaphragm. The omentum and small intestines were prolapsed through the diaphragm, onto the surface of the abdomen and very much contaminated with dirt, ilium completely severed. 4. A stab wound of left side, beginning near the mid-axillary line and extending downward and backward and inward. The stomach had prolapsed through the opening and was perforated and contents escaping.

Under general anesthesia the abdomen was opened through a median incision. The rectus muscle was cut transversely across, making a triangular flap. The small intestines were delivered through wound in diaphragm and chest. An anastomosis was made with a Murphy button between the severed ends of the ilium. The wound in the diaphragm was sutured. The stomach was next delivered through wound in flank, brought forward and an incision about $1\frac{1}{2}$ inches long repaired. The stomach contents had escaped freely from this wound. A rubber drain was placed in the chest through original stab wound. The severed ends of the rectus muscle were proximated with chromicized catgut. A glass drain was placed in vesicorectal pouch through stab wound above pubis. Abdominal wound closed with through-and-through silkworm gut sutures. This patient made an uninterrupted recovery.

Another case equally as interesting was admitted to the hospital with the following history:

Patient.—Female, waitress, aged 18, entered hospital with diagnosis of penetrating and perforating incised wounds of abdomen and thorax and multiple stab wounds of the body. Patient came to the hospital in a state of great shock and with the following injuries: A great mass of intestines and a part of the stomach were protruding from a wound in the diaphragm and left chest. 1. Incised wound four inches long on the right side of neck, extending to subcutaneous tissue. 2. Incised wound on left side of neck five inches long, severing part of the sterno-mastoid muscle. 3. Wound three inches long over the right buttocks, involving skin only. 4. Incised wound of left chest, twelve to fourteen inches long, beginning about mid-axillary line at seventh rib and running backward and upward toward the inferior angle of scapula to within three inches of median line posterior. This wound involved the skin, subcutaneous tissue and muscle and penetrated the thoracic cavity. 5. Incised wound twelve inches long on the left side, beginning just below the fourth rib and running anterior and down along the costal margin, penetrating chest, diaphragm and abdomen, and through this wound protruded the stomach, spleen and a mass of small intestines and omentum. The spleen was cut. 6. Incised wound five inches long through skin of left buttocks. 7. Incised wound of skin four inches long over

upper and posterior surface of left thigh. 8. Two incised wounds over posterior surface of right wrist.

Patient is in state of profound shock. The wounds cleansed and patient prepared for operation. At operation the stomach and intestines were found not perforated. The incised wound in the spleen was repaired. The intestines and stomach returned to abdominal cavity and the wound in the diaphragm, which was about seven inches long, was sutured without difficulty by inserting a stay suture at either angle, by which method the diaphragm was brought into view and the wound sutured rapidly with a running stitch. There seemed to be little difficulty in respiration or cardiac action during this time, the patient breathing approximately as well as though the pleural cavity had not been penetrated. The left lung could be seen through the chest wound partially expanding and contracting regularly with each respiration and was not entirely out of commission.

The abdominal wound and the large stab wound in the thorax were sutured rapidly, and the other wounds over the body, being packed at the time of preparation for operation, were left undisturbed. Patient was put to bed as soon as possible and died five days later, March 8, at 8:30 a. m. Death was caused by pneumonia of the bronchial type and a beginning gangrene of the tip of the lower lobe of left lung.

From a careful analysis of the cases coming under my observation, I am convinced that there are present in but few of them symptoms on which a positive diagnosis of injury to the diaphragm can be made, and that in many cases, where extensive injuries to the abdominal viscera are present, the patients are apparently in excellent condition and present practically no symptoms. I, therefore, believe that in all penetrating gunshot or stab wounds of the chest, where, from the location of the wound, it is reasonable to conclude that injury to the diaphragm is possible, the existence or non-existence of such injury should be determined by proper exploration. Positive symptoms in these cases are generally the signals of peritonitis, and peritonitis of this character is usually fatal.

If this view is correct, how shall we explore, through the chest or through the abdomen? A penetrating wound of the diaphragm is a penetrating wound of the abdomen, and an exploration to determine the presence of such an injury which does not enable the operator to repair, if present, the associate injuries to the abdominal viscera should not be undertaken. To sew up an injured diaphragm and leave a perforated bowel or stomach would certainly prove disastrous. Through an abdominal incision the extent of injury to both diaphragm and abdominal viscera can be absolutely determined. If it is found that the wound in the diaphragm is so situated that it can not be repaired through an abdominal incision, thoracotomy can be done, resecting an inch or two inches of the rib. With the hand in the abdomen, the diaphragm can be pushed into the thoracotomy wound, making the work of repair quite easy.

In conclusion, let me say that the mortality in this work will always

be high. Many of these patients are mortally wounded when seen by the surgeon. There are, however, quite a number whose injuries can be repaired with satisfactory results if operation is undertaken early. I, therefore, urge that more attention be paid to penetrating wounds of the lower chest, and that early exploration be undertaken as a routine procedure in all cases where injury to the diaphragm is suspected.

THE TREATMENT OF JOINT TUBERCULOSIS.*

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In considering the treatment of joint tuberculosis it will be best to divide the subject into three headings: first, to consider those measures which are essential in the treatment of any form of tuberculosis; second, to emphasize and explain the procedures which have been found to best relieve pathologic conditions in joints in general, and, finally, to consider the particular requirements of each individual joint.

Under the first heading we must not forget general hygiene, fresh air and proper food. I wish to especially emphasize this, because, while they are generally recognized as of the utmost importance in pulmonary tuberculosis, I find that in the treatment of surgical tuberculosis they are only too often neglected. We all know how important it is to live in fresh air, and yet how few of us are there who see to it that the rooms in which we live are properly ventilated and how few of the cases of surgical tuberculosis have all of the fresh air they need?

While in pulmonary tuberculosis sanitarium treatment seems to be much more effective than home treatment, for reasons which we need not discuss here, joint tuberculosis can be treated quite as effectively in private residences and hospitals if the subject of ventilation is given proper thought and study. An open window in a room will secure change of air sufficiently frequently to render it pure enough for all practical purposes, and when all is said and done it is much more reliable and effective than all the complicated and expensive systems of ventilation now recommended.

The question of diet is also of the utmost importance. A well-balanced ration properly prepared is the first requisite. This should consist of good meats, vegetables in season, a fair amount of fruit, and in addition the average adult patient should consume two quarts of good milk, from four to six fresh eggs daily, sugar should be given a little more sparingly than to normal individuals. In addition to the above, I have found a moderate quantity of good nuts and ripe olives a very pleasant change and a useful addition. If these are given, the less agreeable and often poorly tolerated fats, such as cod liver oil and olive oil, can often be dispensed with, to the great relief of many of the patients. Drugs,

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if any, should be prescribed if there is a distinct indication arising apart from the tubercular process. I suppose almost every drug in and out of the Formulary has at some time or other been employed in tuberculosis and all of them, except as above indicated, have been found wanting.

In joint tuberculosis, as in all the other forms of tuberculosis, it is, of course, a struggle between the individual, on the one side, and the infection, on the other, and the whole plan of treatment consists in strengthening the defensive powers of the former by increasing its resisting power, and to weaken the latter as much as possible, and all the measures which I wish to propose have one or the other or both of these objects in view and have proven effective many times.

Within the last two years we have learned how to determine the resisting power of the patient to tubercular infection, and since this discovery has been made we have learned better and better how to increase the resisting power of the individual, because we have had a fairly accurate method of calculation. I refer to the study of the opsonic index. While this may not necessarily give us absolutely accurate information as to all the changes in the resisting power of the individual, it does give us an accurate gauge as to the phagocytic power of the organism, and this undoubtedly is one of the chief factors which determines the prognosis. There are quite a number of measures which increase or decrease this phagocytic power; the ones already mentioned all help to increase the resistance of the patient and to raise the opsonic index. The two factors which lower the opsonic index more than any others are pain and secondary infection, and consequently it is our duty to do everything we can to reduce the former to a minimum and to prevent the latter if possible.

To check pain by the use of opiates is only permissible in extreme cases, and then only for a very short time, because it interferes so seriously with nutrition, and good nutrition, as above stated, is one of our best weapons of defense. Fortunately, we have a much more reliable and safe method by which to relieve pain in joint tuberculosis, namely, the securing of rest of the involved joint. This can practically always be accomplished by placing the muscles surrounding this joint in accurate equilibrium and then immobilizing the extremity. The exact position in which these joints should be held, in order that the antagonistic muscles shall be in exact equilibrium, will be discussed when we come to consider the individual joints.

For the purpose of securing absolute immobilization I have found plaster of Paris and wheat gluten bandages applied over stockinette very much more reliable and satisfactory than any of the expensive orthopedic appliances. The use of stockinette in place of cotton is very important, because the latter is elastic and allows of some motion, while the former will secure absolute immobilization. It is for the same reason that I would condemn all orthopedic appliances. When properly applied plaster of Paris holds the joint absolutely rigid, the dressing is light, comfortable and durable, the four principal requisites. It is often surprising how rapidly pain subsides when complete rest of the affected joint is

secured, and this procedure alone will often cure a tubercular joint without any of the other accessories.

There is, however, one subject of fully as great importance as immobilization, and that is the prevention of secondary infection. A non-secondarily infected joint will sometimes get well without any treatment, but if it is secondarily infected it usually taxes our skill to the utmost. Secondary infection causes the ankylosis of more joints, the loss of more extremities, the death of more patients, than the disregard of all the other precautions combined, and if I were permitted to give only two precautions in the treatment of tubercular joints I would say immobilize them in proper position and prevent secondary infection, and I am sure that if these two rules only were observed 95 per cent. of all cases of joint tuberculosis would heal out and a cure would result so far as the tuberculosis is concerned.

To emphasize this a little more strongly, let me say that up to two years ago I never saw a case of secondarily infected tuberculosis of the spine which healed permanently, and Hoffa, in his "Orthopedic Surgery" and in his lectures, states that 95 per cent. of all cases of secondarily infected Pott's disease never fully recover, but ultimately succumb to some form of tuberculosis. When we place opposite to this the fact that fully 98 per cent. of tuberculosis of the spine can be permanently cured if secondary infection is prevented, provided satisfactory immobilization is secured, we will get some idea of the danger in incising tubercular abscesses. The old saying, "Where there is pus, there evacuate," has led to much mischief, because it has been applied to tubercular abscesses. Cold abscesses do not contain pus in the ordinary sense of the word, and, if evacuated at all, every precaution should be taken to avoid secondary infection. Simple uncomplicated tuberculosis is one of the easiest affections to relieve; in fact, you might almost say ordinarily it is a self-limited disease, while when complicated with secondary infection it is a serious malady and often taxes our ingenuity to the utmost. It is, therefore, our first duty when we are called to see a case of joint tuberculosis to consider this grave danger and to make our plans so that this can be avoided. If, in spite of every precaution, this complication does occur, it then becomes our duty to combat it with all possible vigor, but this does not mean to cut down upon it and try to dissect out the sinus or to irrigate it with all imaginable antiseptics.

It is only within the last two years that we have had reliable methods of combating secondarily infected joint tuberculosis. I refer to the vaccination treatment introduced by Wright of London and to the injection with bismuth paste, as recently recommended by Beck of Chicago. As the former is one of the newer methods I will refer to it somewhat in detail. The latter will be more fully described by Dr. Beck himself, as I see he is on the program.

The Wright vaccination treatment consists in the subcutaneous injection of varying doses of Koch's new tuberculin at varying intervals, depending upon the opsonic index of the patient, and it is this careful study of the opsonic index that has made the difference in its efficiency.

Many years ago Haeckel made the observation that leucocytes and other living cells possess the power to ingest solids. Metchnikoff was the first, or one of the first, to make the observation that these cells will also take up pathogenic bacteria. He called this process phagocytosis, and contended that the leucocyte had the power of digesting the pathogenic bacteria and thus rendering them harmless to the human organism. Some observers have strongly opposed this view, contending that the finding of the micro-organism within the leucocyte was purely accidental, or even going so far as to claim that the micro-organism was the aggressor and entered the leucocyte for the purpose of feeding upon it and destroying it. No real progress was made until a few years ago, when Wright of London took up the subject, corroborated the observations of Metchnikoff and his followers, made several important new discoveries and, putting all this knowledge together, made practical application of it, thus taking a tremendous stride forward in the scientific treatment of at least several common diseases.

He found that he could by a certain method raise this opsonic index, increase the phagocytic action of the leucocytes, thus improve the resisting power of the patient and effectually overcome the disease. This was the final step necessary in order to make all of this knowledge of practical value, and he accomplished his desired end by injecting minute quantities of a vaccine prepared from pathogenic micro-organisms causing the various diseases.

Koch long ago recommended his new tuberculin to be used by subcutaneous injection, but, while it was followed by brilliant results in some cases, it was quite as frequently followed by dire failure, and not until Wright came out with his work did we have any clue to the reason why one case should react favorably and one badly. It has been proven very conclusively by Wright and many other observers that tuberculin must be given very carefully, otherwise it may do as much harm in one case as it does good in another, and the only way in which the dose and frequency of administration can be adjusted to the individual case is by a careful study of the opsonic index. If an overdose is given or if the dose is repeated at too short intervals the resisting power of the patient is greatly depressed instead of being improved, and if these excessive or too frequent doses are repeated serious results are sure to follow.

Early in our vaccination work we had two cases which impressed this fact upon us very forcibly. One was a case of very severe acne of the face and shoulders in which we gave an overdose of the vaccine, and while the patient had considerably improved before this overdose was administered she immediately had a flaring up of the condition and became fully as bad, if not worse, than she had been at any previous time, and this occurred without any appreciable rise in temperature or acceleration of the pulse, and if her affection had been a deep-seated one like a tuberculosis of a joint we would not have known that we had given her an overdose except by a study of the opsonic index, and serious harm might have resulted from the vaccination. For the present at least, until some other and simpler guide to the dosage can be determined, a careful reading of

the opsonic index at short intervals is extremely important, as it is essential that we do not give a sufficiently large dose to unduly depress the index or to give a new dose while the index is on its downward course.

That there are many and various features which may depress the opsonic index has now been repeatedly proven. Among these may be mentioned poor food, poor ventilation, chilling, constipation and the shock incident to an anesthetic and an operation, and it is after any and all of these or even without them that it is necessary to read the opsonic index before a tuberculin injection is given, so as to avoid giving the injection when the index is on its downward course.

The importance of the last fact was impressed upon me by one of our first cases. A young woman with a very extensive tuberculosis of the neck was operated upon and the injection begun a week after the operation. The wound did badly, broke down its whole extent and we did not know why this occurred until we found out that an extensive operation depresses the opsonic index for several weeks, and it is not safe to start the tuberculin injections until the index has started on its upward course.

If secondary infection occurs in joint tuberculosis either in spite of every precaution, or because the patient does not seek medical aid in time, or, what is still worse, because of a blunder of one of our colleagues, the prognosis is not nearly as bad now as it was up to a few years ago. If in one of these cases one will observe all of the precautions already recommended and bring to his aid the vaccination treatment and the injection of Beck's bismuth paste a very large per cent. of these patients can still be relieved of their trouble.

In the treatment of joint tuberculosis in the past we have been very well satisfied if we have succeeded in curing the disease with the limb in good position, but with the affected joint permanently ankylosed. Since the introduction of these newer therapeutic agents we have accomplished much more. We have not only been able to effectively stamp out the tubercular process, but we are getting a larger and larger per cent. of anatomical and functional cures. If all of the patients with joint tuberculosis are put under good hygienic and dietetic regimen, if the joint is absolutely immobilized for a sufficiently long period of time and if the patient is properly treated with the new tuberculin controlled by carefully reading the opsonic index and if secondary infection is avoided, a very large per cent. of the joints will heal out perfectly and permanently and regain a very fair degree of mobility. The process of healing with the vaccination treatment is fundamentally different than without it. Ordinarily as a tubercular process heals there is an increase of connective tissue with ultimate sclerosis and possibly calcification, practically a process of excluding the tubercular focus. When the vaccination treatment is employed exactly the opposite takes place, as I have been able to demonstrate in several cases. The vaccination seems to inhibit connective tissue development, or if connective tissue has already formed it appears to have the power to cause its absorption. In joint tuberculosis this is

of the utmost importance. If we can secure a perfect healing out of the tubercular process without connective tissue formation, we will naturally have a more nearly normal and hence much more useful joint.

Let us now consider the method of immobilization best suited for tuberculosis of the individual joint. For convenience, let us begin with the ankle joint. As stated before in the consideration of the joints in general, apart from the general considerations above outlined, there are two things upon which our attention must be specially centered: first, to immobilize the joint absolutely by some dressing that is light, durable and comfortable; second, to put the joint in that position in which the antagonistic muscles are at perfect equilibrium. In order to accomplish the first requirement I have found plaster of Paris applied over stockinette and then reinforced by wheat gluten bandages to fulfill every requirement. A cast thus applied will hold the joint absolutely rigid and immovable for any desired length of time. It is comfortable and need not weigh to exceed 24 ounces. It is inexpensive and fulfills its requirements very much better than any of the expensive orthopedic appliances which I have ever seen. The ankle joint should be put in plaster with the foot at a little less than a right angle to the leg, because it is in this position that the muscle equilibrium is attained. The ventral flexors, consisting of the soleus and gastrocnemius, are very much stronger than the dorsal flexors, and unless the latter are put at a slight advantage the muscle equilibrium will not be attained, and it is upon the exact finding of this muscle equilibrium and upon the thoroughness of our immobilization that our ability to stop the pain depends. If the ankle is absolutely immobilized and the equilibrium is accurately established, muscle twitching will soon stop and with it all pain will cease. As soon as the pain ceases the patient will sleep well, eat well, gain in flesh, his opsonic index will rise and he is on a fair road to recovery.

If the ankle is very painful, the patient may be kept quietly in bed for a few days, then allowed to walk with crutches, and as soon as he can step on his foot without pain the crutches can be discarded, a soft leather shoe placed over the cast and the patient may be allowed to resume his ordinary vocation.

If the knee joint is involved, the correct position of immobilization is an angle of about 175°. The cast should extend from the tuber ischium to the malleoli and should not weigh more than two pounds. While the knee is sensitive, the patient is allowed to walk with crutches with a high-soled shoe on the good foot, swinging the affected limb. As soon as the patient can bear his weight on the affected limb without experiencing any pain whatever he may discard the crutches and high sole and go about his business in the ordinary manner, possibly with the aid of a cane.

In the hip the position of equilibrium is 10° of abduction and 5° of ventral flexion. The cast should extend from the level of the umbilicus to a little above the knee. As a rule, it is unnecessary and often unde-

sirable to apply extension. Sometimes if the affection is on the upper surface of the head of the femur or in the upper rim of the acetabulum Buck's extension over night is desirable. In the great majority of cases the extension furnished by the weight of the affected limb as the patient walks with crutches and a high sole under the good foot is all that is required. Ordinarily, again, as soon as the patient can bear his weight on the affected limb without pain the crutches and high sole may be discarded.

In tuberculosis of the fingers, hand and wrist the cast should extend from the very tip of the fingers to within two inches of the elbow; the fingers, hand and wrist should be perfectly straight. In the elbow the cast should extend from the wrist to the axilla and the arm and forearm should be at a right angle. In the shoulder the arm should be strapped to the chest with adhesive straps with a small triangular pad placed in the axilla; a plaster of Paris shoulder cap is now applied and held in place by a soft roller bandage and the forearm placed in a sling.

The question of how to immobilize these tubercular joints now being solved, the next important point to determine is the time. This I would answer by saying, be sure to immobilize long enough. No definite rule can be laid down, but as all of these patients can go about their business almost from the first and are not greatly inconvenienced by the dressings, wearing the cast a little longer than is absolutely necessary is no great hardship and will absolutely protect them against a relapse. In the case of a hip joint, for instance, I have made it a rule to leave the cast in place six months after I am thoroughly convinced that the tuberculosis is entirely healed out.

In the case of a very painful tubercular joint with partial ankylosis in a faulty position, the question arises, What shall be done here? Let us take, for instance, a subacute tuberculosis of the hip joint, the patient greatly emaciated, suffering excruciating pain, the thigh flexed upon the abdomen, adducted and rotated inwardly. Shall we depend upon Buck's extension and attempt thus to slowly bring the joint into proper position? Personally, I would say, "No," most emphatically. Anesthetize the patient, place the thigh in the proper position, apply a cast, give an occasional dose of morphin hypodermically for the first two or three days, at the end of which time the spasm will have subsided entirely. As soon as the opsonic index starts on its upward course, put him on vaccination treatment, place a high-soled shoe on his good foot, get him on crutches and out of doors into the fresh air in the course of ten days, give him good food, and the rapidity with which he takes on flesh, gets rosy cheeks instead of the hectic flush, will surprise any one who has not employed this treatment before.

Joint tuberculosis, if thus approached, loses much of its danger to the patient and disappointment to the surgeon and becomes one of the most satisfactory and easily managed of affections.

FURTHER STUDIES IN THE TREATMENT OF TUBERCULOUS
SINUSES, FISTULOUS TRACTS AND ABSCESS
CAVITIES.*

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The treatment of the above affections by the bismuth method, published in *The Journal of the American Medical Association*, March 14, 1908, and the April number of THE ILLINOIS MEDICAL JOURNAL, has since been employed by several noted surgeons, and from their reports and our own increased experience we may unhesitatingly pronounce it an improvement upon the older methods. The ten cases presented before the Chicago Medical Society, Jan. 15, 1908, have all remained well, and two cases which then still had a slight discharge have since entirely healed up.

I shall omit the description of the method, since this paper deals with the progress of our investigation and experience since Jan. 15, 1908. A second and longer series of cases has since been treated by us (Drs. Carl and Joseph Beck and myself), and I shall quote in detail the histories of only such cases as will illustrate new points.

The first question to be solved is: What becomes of the bismuth after injection? In the majority of cases portions of it will be discharged into the dressing within twenty-four hours; in others, where the sinuses are deep and tortuous, the bismuth paste will remain for days or even weeks, and frequently a portion of it will heal in and become encapsulated and gradually absorbed. In cavities with rigid walls, such as bony cavities, the absorption is preceded by the organization of the plug by connective tissue, while in cavities with resilient walls, such as the pleura, the gradual absorption of the bismuth paste will be replaced by the expanding lung.

These assertions can be proven in three ways: 1. By radiographs taken at certain intervals. 2. By physical examination of patient. 3. By microscopic examination of the tissues.

The presentation of the first case illustrates the absorption of bismuth. This case of lung abscess was presented before the Chicago Medical Society, Jan. 15, 1908, only five days after closure of his fistula. A brief abstract of the history is here necessary.

H. O., a young man of 19, with good family history, was first taken sick in January, 1907. Pleurisy with effusion resulted in empyema, with a subsequent resection of two ribs and drainage, March 19, 1907. Since then the cavity discharged from two to three ounces of pus, until December 20, when he presented himself for treatment. In the first skiagraph taken, we demonstrate the condition before bismuth was injected. The size of the abscess cavity is here outlined by the fibrous walls of the abscess. Between Dec. 20, 1907, and Jan. 10, 1908, ten injections of bismuth were given, which resulted in the permanent closure of the fistula. The second skiagraph was taken after the last injection of bismuth, and clearly marks the boundaries of the cavity. No bismuth escaped after this. The third skiagraph taken shows the condition in his chest two months later; on March 15, 1908. The size of the bismuth plug is already reduced one-fourth its former size, the space being replaced by the expansion

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

of lung. A fourth skiagraph was taken on May 6 (four months after last injection), and shows a still further absorption of the bismuth paste. The quantity is reduced to about one-twentieth of its original size, and healthy lung has replaced the space first occupied by the paste.

A physical examination of the patient's chest, who is here for the purpose, fully corroborates the findings in the last radiograph. There is distinct resonance of that area of his chest which previously was distinctly dull.

The response of the living organism to the injections of bismuth paste was studied on guinea-pigs. The animals were injected, subcutaneously, intramuscularly and intraperitoneally, and four weeks later sections were prepared for microscopic examination. Postmortem findings demonstrated that the masses injected intramuscularly and subcutaneously were encapsulated, while the paste in the peritoneal cavity was found loosely imbedded in the recesses and pouches in the abdominal cavity, and in only a few places was it adherent to the peritoneum.

Microscopic examination of intramuscular injection revealed: Under low power (Fig. 1) a black border of crystals, indicating the margin of the space in which the bismuth was lodged, had dropped out while the section was cut. These are bismuth crystals, in the meshes of which are round cells, closely packed. Under high power (Fig. 1) we note that these round cells are young connective tissue cells closely infiltrating the spaces between the bismuth crystals. The border-line consists of several layers of elongated connective tissue cells, the nuclei of which are somewhat faded. These cells group themselves in concentric layers, so that the entire border appears encircled with a wall of connective tissue. Just outside of this layer we find a large number of irregularly arranged shorter and longer spindle cells, and in places invading the interstices of the adjacent muscular fibers. Bismuth crystals are found in the interstices of the muscular fibers, and in the lumen of some blood vessels. The specimens here shown demonstrate these histologic findings.

These experiments prove that when bismuth vaselin paste is injected into healthy muscle it will be invaded by fibroblasts, which later form a complete connective tissue wall. Whether the same process takes place in chronic suppurating cavities after the bismuth paste has healed in is a matter which will be determined when the experiments in this problem are completed. Whatever the histologic findings may be, the absorption of bismuth stands proven by the radiographs.

Dr. M. Silbermark, a former assistant of Prof. Mosetig-Moorhof, published in 1904 an admirable article¹ illustrating the regeneration of bone after insertion of the Moorhof plug into bony cavities. He follows the absorption of the iodoform wax plug and its replacement by true bone, step by step, and finds the plug entirely replaced by bone in five weeks.

It was formerly questioned whether bismuth was absorbed in the alimentary canal, but it is now definitely proven that it is slowly absorbed and slowly eliminated. Harnack² affirms that bismuth has been found in the liver, spleen, urine and mother's milk after administration. Prof. E. S. Wood³ has detected bismuth in the urine four weeks after last ingestion.

1. Deutsche Zeit. f. Chirurgie, 1904.

2. Arzneimittellehre, 1883, p. 383.

3. Trans. Amer. Neurolg. Assoc., 183, p. 23.

Having now ascertained that bismuth is slowly absorbed even from dense-walled fistulae, the practical question arises: Is the continuous absorption of bismuth harmful? We hear little of bismuth poisoning, although nearly every practitioner prescribes it in diseases of the gastrointestinal canal. Radiographers give large quantities by stomach for the purpose of obtaining Roentgenograms of the digestive organs. Rieder⁴ prepares a bismuth meal which contains 40 grams of bismuth subnitrate, and states that he never noticed any ill effects from it.

On careful perusal of the literature, we find, however, that several cases of bismuth poisoning are on record. Professor Kocher,⁵ in Bern, who used bismuth subnitrate for antiseptic dressings during surgical operations, reported in 1882 several cases of poisoning which he attributed to the use of bismuth. Professor Petersen⁶ also reports a case, brought about by rubbing bismuth powder into the ends of a resected joint. In 1901 Dressman⁷ and Muehling⁸ reported three cases due to bismuth salve dressing. The symptoms noted were acute stomatitis, with a peculiar black border around the teeth and dark discoloration of the mucous membranes, an intestinal catarrh, and desquamative nephritis.

These reports should put us on guard, since they come from reliable observers, but they are not recent, and it must be suspected that the poisoning might have been due to arsenic, formerly a constant ingredient of commercial bismuth. The preparations now on the market, especially the South American product, are guaranteed by the chemists to be free from arsenic. In our experience with at least 2,000 injections of bismuth paste, we have not encountered a true case of poisoning such as described by the authors just quoted, but since our attention has been called to them we have watched for them.

In one case where 300 grams of the 33 per cent. paste was injected into the pleural cavity, we observed a cyanosis of the lips; the patient complained of headache, but stomatitis or nephritis were not present. The symptoms disappeared in two days. Whether these symptoms were due to excessive absorption of bismuth is questionable. The evidence predominates that arsenic-free bismuth is a harmless substance, especially when injected into sinuses where conditions for absorption are not favorable. Nevertheless, it is well to guard against using large quantities in the first injection. **ONE HUNDRED GRAMS SHOULD BE THE LIMIT DOSE FOR THE FIRST INJECTION.** Later the quantity may be increased.

A study of the factors which produce the rapid improvement in these otherwise resistant affections is highly interesting. It is certain that more than one factor takes part in the reparative process. Some of the factors are known to us; of others we are still uncertain. A complete filling of sinus cavity with a liquefied bismuth vaselin paste, rapidly solidifying, is very desirable for the process of healing. It separates the diseased walls and brings them in direct contact with a substance in itself bactericidal. The uniform pressure exerted upon all parts of the

4. Archives of the Roentgen Ray, N. 87, October, 1907.

5. Volkmann Klin. Vorträge, N. 224.

6. Deutsche Med. Wehnschr., 1883, June 20.

7. Muenchener Med. Wehnschr., Feb., 1901.

8. Münch. Med. Wehnschr., April, 1901.

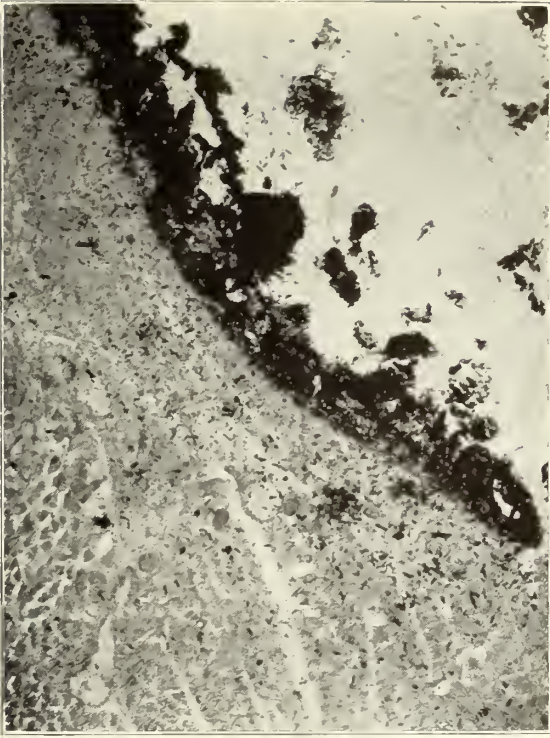


Fig. 1.—Bismuth paste injection into muscle. A, organization by fibroblasts.



Fig. 2.—Same, high power.



Fig. 3.—Empyema pleurae before injection of bismuth paste.



Fig. 4.—Empyema pleurae after bismuth paste has been injected.

fistula is likewise a factor not to be underestimated. Pressure is a necessary condition for healing processes. If we may judge from analogy, Nature produces pressure by infiltration in the healing process of inflammation, or by the accumulation of fluids in inflamed joints, and Prof. Bier's congestion treatment, all seem to indicate that pressure favors healing process.

The bactericidal quality of bismuth is a very important factor. We have somewhat underestimated its value in the beginning of our experiments, but with our growing experience we believe it will be difficult to find another substance which is bactericidal, astringent, slowly absorbed, and, at the same time, practically non-toxic. Its antiseptic properties were tested by Prof. Kocher and Prof. Peterson in 1882. We have tested its bactericidal action by periodical examination of the secretions from fistulae while under the bismuth treatment, and have invariably found a gradual decrease in the number of micro-organisms, in many cases noting their entire disappearance. **TUBERCLE BACILLI APPARENTLY ARE NO EXCEPTION TO THIS RULE.** We have satisfied ourselves of this fact in one case of tubercular empyema, in which we found large numbers of them in the pus before the bismuth was injected, and after careful daily examination of the secretions we could observe a gradual diminution of their number.

For illustration I shall cite this interesting case in detail:

B. H., 23 years old; law student with a family history free from tuberculosis; was first taken sick in January, 1906, starting with a chill and fever; then termed a congestion of the lungs. While he remained in bed for only one week, his fever and shortness of breath persisted 4 months, when Dr. Hubbard, of Toledo, aspirated the chest three times in five days, each time withdrawing a large quantity of serum.

Up to September 1 his chest was aspirated nine times, the last resulting in the withdrawal of forty ounces of slightly turbid fluid. Sept. 20, 1908, he went to Denver where Dr. Sherman C. Bonney again aspirated three times, each time withdrawing large quantities of a turbid fluid. Dr. Bonney reports to me that tubercle bacilli were present in the fluid withdrawn. After sixty days' stay in Denver, he gained twenty pounds, and returned home, stopping off at Chicago. Here he consulted Dr. James B. Herrick, who kindly referred the case to me, and through whose courtesy I was able to obtain a good history. His weight then was 151 pounds. Symptoms: Slight dyspnea, cough, normal temperature. Right side of chest dull up to the fourth rib, above the fourth to the apex; vesicular breathing. Pericardium free; apex displaced to left nipple. Urine negative. Diagnosis: Tubercular pleurisy with effusion. On Dec. 5, 1906, five ribs were resected by Drs. Danley, Hubbard and Grosh, in Toledo, and a handful of a fibrinous mass called chicken-fat lymph, was removed, and large drainage tube inserted. The cavity was irrigated twice a day with $\frac{1}{2}$ per cent. iodine solution, during his seven weeks' stay at the hospital, and daily irrigations continued at home. At one time a 10 per cent. iodoform-glycerin emulsion was injected. With this history he presented himself for treatment, April 24, 1908.

Physical examination revealed a resonance over his entire right chest—a fistula discharging dark green, thick pus was in the center of an ezeematous area, about two inches below the nipple, and internal to the axillary line. A smear preparation from this pus revealed the presence of tubercle bacilli, 5 to 15 to each immersion field, and few cocci. A culture proved the presence of staphylococci. A radiograph (Fig. 3) shows clearly the size of the cavity when empty and another radiograph (Fig. 4) after injection of five ounces of the 33 per cent. bismuth vaselin paste demonstrates the outlines still more clearly.

The drainage tube was at once left out, and the patient allowed to walk out-

doors. Every day or two thereafter the accumulation of pus was drained off by means of a glass tube, and more bismuth was injected, until the entire quantity in the chest cavity amounted to twenty-four ounces. This produced uncomfortable pressure, and a radiograph demonstrated that the bismuth had crowded the lung tissues toward the spine. Smear preparation of the pus was made every time the patient was dressed, and each time we found the number of tubercle bacilli diminished. We submitted many specimens to Dr. A. Gehrmann and Dr. M. Herzog, for examination, and their last report indicates that only one bacillus in each ten immersion fields, could be found, whereas before bismuth was injected 5 to 15 bacilli could be found in every immersion field. A later report from Drs. Gehrmann and Herzog confirms my findings of a complete disappearance of the tubercle bacilli.

We do not regard the gradual diminution of the number of tubercle bacilli in this case sufficient to establish a principle of so vast importance, but is certainly very significant, in view of the fact that tubercular fistula so readily respond to the bismuth injection treatment. If the rapid disappearance of tubercle bacilli in the case quoted is not accidental, this disclosure is certainly of far-reaching importance. Investigations in this direction are now being actively carried on by us, and we hope in the near future to bring a complete report of the work. Whether bismuth destroys the bacilli by its chemical action or whether its presence acts as a chemotactic is a matter not yet decided.

The bacillus of tuberculosis is rarely found in the pus of tubercular sinuses or abscesses; it lives in the granulation tissue and walls of the abscess cavity, and its destruction by antiseptic washes, therefore, is difficult. The contact of bismuth with the walls containing the micro-organisms inducing chemotaxis would naturally exert a destructive influence upon them. That they cease to be found in the pus discharge, however, does not mean that they have been entirely exterminated; they may still exist in large numbers in the walls of the abscess. Here is an inviting subject for pathologists, chemists and bacteriologists. The leucocytosis, the opsonic index and chemical changes in the blood as affected by the bismuth injections are still open to investigation. We hope to hear from authentic sources an interpretation of all phases of our subject.

Another factor not entirely to be ignored is the action of the *x*-ray on tubercular disease in the presence of bismuth vaselin. In recent years much work has been done in the treatment of tuberculosis by means of radiotherapy. The literature pertaining to the subject has grown rapidly, and, since it comes from reliable sources, we must not entirely ignore it. Many good authorities report good results of treatment of tuberculosis by *x*-ray. The work of Gibson and McCullough, of England, are noteworthy contributions to this subject.

Gibson claims that *x*-ray leads to the destruction of tubercle bacilli, and that this leads to a change of the opsonic index. The toxins produced by the destruction of tubercle bacilli seem to act in accordance with Wright's theory, namely, in affecting the tuberculo-opsonic index. This view is supported by the experiments of Wilkinson in the treatment of leprosy. McCullough has confirmed this fact by extensive experiments upon tubercular patients and by taking from time to time their tuberculo-opsonic index. Dr. Hayes Leeds and O. Shephard Barnum⁹ and many others contributed to the literature.

9. Arch. of Physiol. Therapy, 1905.

Since all our cases have been exposed in the *x*-ray after the injection for the purpose of obtaining radiographs, and since both bismuth and vaselin are radioactive substances, we are led to inquire how much the *x*-ray contributes to the acceleration of the healing process. It must be conceded that it can play only a secondary part, since some of our noted surgeons have obtained equally good results without the employment of *x*-rays. We have noted, however, that in resistant cases, especially where external erosions existed, the daily exposure to the *x*-ray for two minutes stimulated the healing process. I would not advise it as a routine treatment, but reserve it for the resistant cases with erosions.

Since our last communication we have made only slight modifications in the method of treatment. All changes made have simplified the method. We have given up attempting to dry the sinus before injection. It is in most cases impossible and, moreover, entirely superfluous. We have discarded the use of iodoform entirely, since our results without it are entirely satisfactory, and reserve the use of $\frac{1}{2}$ per cent. formalin only for very septic cases where streptococci are found. The skin and opening are always cleansed with alcohol before injection, in order to prevent secondary infection.

LIMITATIONS.

As stated previously, the method is not applicable to biliary fistulæ and sinuses communicating with the cranial cavity. In fistulæ following an abscess or cyst of the pancreas, one should be very conservative, since the pressure of a bismuth plug may be sufficient to obstruct one of the pancreatic ducts and produce acute pancreatitis, with fatal result. There is little danger in its application to perineal fistulæ communicating with the bladder. Should some of the paste enter the bladder it would pass with the urine or could be washed out with warm water.

In cases where sequestra are the focus of disease, the healing will go on very slowly, and it will require a removal of the sequestra before a cure can be expected. Even here we have found exceptions, and I have in my records two cases where a sequestrum remained in the tissues and the diseased process healed up and has remained closed since. In cases, therefore, where the sequestrum is not accessible or the operation connected with very great risk, it is safer to give the bismuth injection for a prolonged time and reserve the risky operation as a last resort.

Progressive surgeons will gradually extend this method of treatment to the danger lines, and the fact that cases previously regarded as hopeless have so quickly responded to the treatment may lure enthusiasts to daring procedures. I would advocate a wholesome conservatism and a safe, gradual development in the method.

While we so far have had no dangerous or unpleasant symptoms follow the injection of bismuth, an accident is not impossible. The fistulæ may lead to a vital organ, and the plug by its compression may cause serious complication and it is even possible that by undue overdistension of an abscess cavity a vein may be opened and the bismuth paste may enter the general circulation and cause death. Under no circumstances should we employ a metal aspirating syringe for these injections. In one animal we accidentally injected the paste into the vein and the animal died instantly.

Pioneers in investigation have always made mistakes in the beginning. They had no infallible rule to go by and made hasty conclusions. "It is better to hesitate over a truth than to welcome an error, for a false conclusion may lead us astray unless soon detected."

There are, however, great possibilities for its application in chronic suppurative conditions of the head and neck. This field must be worked out by rhinologists and otologists. Dr. Joseph Beck, who has had the advantage of watching the progress of this work for the past two years, has grasped the opportunity and tried it on suppurative disease in the antrum of Highmore, and reported five cases with complete cure after a few weeks' treatment. He has recently applied it in other sinuses and will report the results later. Dentists likewise have taken the suggestion and applied it to the treatment of alveolar sinus.

We have also tried the method in cases of tubercular joints in their subacute stage; in other words, we tried to substitute the iodoform glycerin by the liquid bismuth paste, and note comparative results. A report of a case will best illustrate this procedure and its result.

P. P., girl, five years old; family history negative. Was well the first year of her life, when a swelling was noticed above her left ankle joint. This was treated locally by physician, and five months later an abscess was incised above the internal malleolus. After spicula of bone discharged for some months, it healed out, and the child was able to walk for three years, until September, 1907, when a new swelling appeared, and this time involved principally the ankle joint.

A radiograph taken, demonstrates sequestra in the lower end of the tibia. Temperature ranged up to 102 degrees.

An injection into the joint by means of an aspirating syringe of one ounce of a 33 per cent. bi-vaselin paste in liquid state, resulted in a rise of temperature to 102 degrees; pulse 130, which gradually receded, and on the seventh day temperature and pulse were normal. Radiographs then taken disclosed that the bismuth not only reached all parts of the joint, but also entered the lower end of the tibia, where the sequestrum was lodged. A second injection was made three weeks later, and this resulted in a temperature of 104 degrees, pulse 145, and again a gradual remission to normal. It was then decided to remove all sequestra and convert the joint cavity into a fistula. This was done on March 7, and sequestra were removed. Thereafter the fistula was healed by the method of bismuth injections and healed out within seven weeks.

This case illustrates that when caries of bone is present the joint should first be operated upon, all sequestra and diseased tissue thoroughly removed and at once filled up with liquefied bismuth-vaselin paste. Any attempt to close the external wound is unnecessary and even detrimental, since it prevents the escape of secretions along the sides of the paste, and by keeping it open the bismuth paste will gradually be discharged, while connective tissue will replace the space occupied by the bismuth paste.

Whether the injection of bismuth into tubercular joints where the destruction of bone is slight or confined to the soft structures is preferable to that of iodoform glycerin must be determined by actual trial.

The most important advance we have made in this method of treatment since Jan. 15, 1908, is the prevention of the tuberculous sinuses.

We have proved that tubercular sinuses may not only be treated and cured by bismuth paste injections, but they can be prevented as well.

This method is as follows: A cold abscess following tubercular disease should, under most aseptic measures, be opened by an incision about one-quarter of an inch long or less, the pus evacuated, and the cavity refilled at once with half the quantity of a 10 PER CENT. BISMUTH-VASELIN PASTE, AND OPENING NOT SEALED. A sterile gauze dressing is placed over the incision and a five yard sterile gauze bandage is snugly put on and securely pinned so that the patient, usually a child, can not displace and so infect it. Fresh dressings are to be applied daily under perfect aseptic measures. Should the opening close and fluid reaccumulate, it should be reopened; the fluid, which is then more serous, squeezed out, but the cavity need not be refilled; it will remain collapsed.

This method, properly carried out, will prevent secondary infection, which the orthopedic surgeon has always tried to avoid, and wisely kept his hands off. Incision and draining a non-febrile tubercular abscess was considered a blunder. In many cases, however, Nature produces this undesirable drainage by spontaneous rupture of the abscess, and secondary infection takes place. The secondary infection by our method is prevented mechanically, i. e., the injected abscess cavity contracts, forcing a small quantity of the solidified paste from within through the small incision, thereby blocking the opening and preventing the entrance of infectious material. Three cases have thus far been treated by us with this method and all terminated favorably. The first trial of this prophylactic method was made January 17 at the North Chicago Hospital on a 2½-year-old boy, who had a tubercular abscess about the middle of the tibia. The method described above was employed and proved successful, the cavity having closed in one week.

A second case was treated in this manner by my brother, Dr. Joseph Beck, a week later, when he obtained a similar result by injecting an abscess over the left orbit of a child suffering from tubercular osteomyelitis of the frontal bone.

The third case, a boy of 4½ years old, with a large psoas abscess resulting from tubercular spondylitis, was opened by myself, April 10, 1908, in the manner above described, and injected with 120 grams of a 10 per cent. bismuth-vaselin paste in liquid state. The necessary precautions against infection were taken, and temperature has remained absolutely normal up to this day, whereas it ran from 99° and 100° before the abscess was evacuated and injected with bismuth. The incision closed in four days, and was reopened a week later, and about three ounces of a muddy liquid, serous in character, was squeezed out and 60 grams of 33 per cent. bismuth injected. The opening closed three days later and has remained closed and up to date has not refilled.

In conclusion, I desire to say that we do not mean to displace other methods of treating fistulous tracts by the bismuth injection treatment. On the contrary, we regard it only as one more method to be added to the valuable treatments now in vogue, such as Bier's hyperemia, fresh air, and vaccine therapy. It should be fully tested and then only given its proper place in the treatment of tuberculous sinuses and abscess cavities.

DISCUSSION ON THE PAPERS OF DRs. OCHSNER AND BECK.

Dr. Edward H. Ochsner:—Dr. Beck was kind enough to send us his formula after he was thoroughly convinced of its efficacy, and I can only say for it, we have used it about five or six months, and that Dr. Beck is altogether too modest in his claims. I believe in the course of the next ten or fifteen years we will find that the discovery of this remedy will be one of the great advances in the treatment of tuberculosis. Heretofore, there have been a great many cases of joint tuberculosis incised and injected, and the amount of suffering that has been caused by that procedure has been terrific. The mortality that has been caused has been great. As I said in my paper, I have never, up to two years ago, seen Pott's disease incised and secondarily infected get permanently well, as there would be healing in some places and breaking out in others, and eventually such patients die. Dr. Beck has brought before the profession a remedy which will save practically all of these patients, but that does not mean that we should secondarily infect these cases for the purpose of treating them with Beck's bismuth paste. If a case does become infected, in spite of precautions taken, or if a case becomes infected because of somebody's blunder, because he does not know any better, or because we make a mistake in diagnosis, we incise a tubercular abscess thinking it to be something else, and we have infected the joint secondarily; practically all of these cases can be saved by the Beck bismuth paste injections. In every case in which we have used it, it has been of the greatest benefit. In this connection I wish to mention one patient who had had tuberculosis of the spine for eleven years. The tuberculous area was incised, and he was secondarily infected to such an extent that I thought I would be unable to save him. However, I put a cast on him, immobilized him, injected the bismuth paste, put him on the vaccine treatment, shortly after which the sinuses were healed, and the young man gained thirty pounds in the course of two months. Such results are very encouraging, and if one will use the Beck paste treatment in these cases and in addition use the vaccination treatment, I believe we can restore the joints to normal in the great majority of cases. I have had cases where I thought the joint would be ruined, or there would be permanent ankylosis, but to my great surprise on removing the cast the joint had good motion. Then I would apply the cast for a few months more, remove it, and found that the patient had a good useful joint. It makes a great difference to the young man or the young woman who has a movable joint, so that he or she, as the case may be, will not have to go through the world with an ankylosed joint.

Dr. Beck (closing the discussion):—I was very glad to hear the experience of Dr. Ochsner with reference to the vaccination treatment, since it may have some relation to the bismuth treatment in this way: In my paper I stated I found that the destruction of tubercle bacilli had taken place in the presence of the bismuth. We know from Wright's theory that the destruction of tubercle bacilli causes an increase in the opsonic index, but it is only problematical whether the opsonic index is influenced during these injections. If studies in that direction are carried out systematically, they may throw some light on this phase of the subject. In addition to the injection of the bismuth paste, I believe in letting the patient have as much fresh air as possible. In one case I built a little house on the roof. The patient's temperature varied from 98.6 to 104 each day, but it remained normal on the second day after he had been in fresh air, so that a combination of the vaccine, fresh air, immobilization, and bismuth will be of great value.

I am a little disappointed that the members have not discussed this subject more fully, or, at least, asked some questions, because it would give me an opportunity to think of some points I may have omitted. I know there are a great many practitioners who have already tried this method, but who hesitate to speak of it. I have this request to make, namely, if those who have had experience with it will be kind enough to send me their reports, whether good or bad, with this method before the fifteenth of next August, for the purpose of making a collective report, it will help me very materially in bringing forward statistics in regard to this method of treatment of tuberculous joints.

The author would appreciate a report of cases treated by Bismuth Paste Method, for the purpose of a collective report to the International Congress on Tuberculosis in Washington, September, 1908. Address to Dr. Emil G. Beck, care of North Chicago Hospital, Chicago, Ill.

1. Brief history of case.

2. Diagnosis.

3. How long did fistula or abscess exist?

4. Operation performed?

5. What other treatment was given?

6. When was the Bismuth Paste treatment started?

7. How many times was fistula injected?

8. What was the character of discharge before treatment?

9. Change of character in discharge during treatment:

10. What did radiograph show before and after injection?

11. Final results.

12. Name and address of physician:

The pain and tenderness in the gall-bladder region may be purely of nervous origin, and such an occurrence must not be ignored. Ewald reported such a case in a woman, 30 years of age, who had suffered with intense pain in the hepatic region which had resisted all treatment, and she had become a victim of the morphin habit. At operation all the organs were found normal.

It is a common error not only of the laity, but also of many physicians, not to associate pain in the hepatic region with gallstones unless the paroxysm is accompanied with jaundice. Jaundice is a very infrequent symptom of the disease. Murphy says that less than 14 per cent. have this symptom at any stage. Many cases are diagnosed as indigestion, neuralgia of the stomach, nephritic colic, etc. Usually a differential diagnosis must be made between gallstones and ulcer of the stomach, cancer of the stomach, duodenal ulcer and appendicitis. It is now generally accepted that gallstones can not be dissolved by any remedy that can be taken into the stomach, but much can be done to allay the cholecystitis and the cholangitis to which the gallstones give rise. Moynihan says: "Many of the symptoms in the lighter attacks of gallstone disease are due to a mild cholecystitis. When the gallstones become blocked in the entrance of the cystic duct, an infection speedily follows, effusion takes place in the gall bladder, and inflammation of its walls speedily results."

We do not attempt to treat the gallstones, but we can treat the infection of the biliary passages, and when the inflammation subsides no symptoms remain. It has been said that only about 5 per cent. of gallstone subjects feel anything of their presence and 95 per cent. remain free from suffering. Of the 5 per cent. referred to, it is my opinion that only a very small per cent. ever come to operation. It is true that many cases would be benefited by operation, but it is a very difficult matter to convince them of the comparatively slight danger. Many patients have been told that operative interference is the only thing that can be of any possible benefit, and he goes ahead to make a tardy but complete recovery. Many internists have seen cases in which they had given up all hopes of curing the patient with medicine, and, after refusing the operation, the patient seemed to improve with remarkable rapidity. These cases are almost invariably accompanied with gastric or gastroduodenal catarrh. It is, therefore, necessary to get the whole intestinal tract in as healthy a condition as possible. As a rule, these patients are of a sedentary class and must be almost compelled to take exercise. Women, of course, more than men are given to sedentary habits and are more prone to remain indoors. Exercise favors the flow of bile.

Many remedies have been suggested in the treatment of these cases, with which you are all familiar, such as olive oil, Durande's mixture, chloroform, etc. It is well known that the salicylates act as an antiseptic in the biliary passages, but it is claimed that superior power is manifested in the succinate of sodium. The treatment of biliary calculi with sodium succinate has been so markedly beneficial as to warrant making some suggestions concerning the manner of its action. It is well

known that the fatty acids increase the flow of bile. Succinic acid is a dibasic acid of the fatty acid series, and consequently would have the effect of rendering the bile less viscid. This is a very desirable result to secure. A solution of sodium succinate dissolves cholesterin. If fat from sheep's wool (commercial *adepts lanæ*) containing a large portion of cholesterin be digested with a solution of sodium succinate, this solution extracted with ether and the ether evaporated, a residue of cholesterin is obtained. This proves that sodium succinate dissolves cholesterin, which is one of the chief constituents of biliary calculi.

Therefore, the reason for using sodium succinate in the treatment of patients suffering from gallstones are: (1) Its power to dissolve cholesterin. (2) It makes the bile less viscid. (3) It is an antispasmodic and sedative. This is most conveniently administered in uncoated five-grain tablets. One or more of these should be given every two or three hours. No untoward effects of any kind are reported. Following operations for the removal of gallstones, free use of these tablets is often desirable as a means of preventing a recurrence of the trouble. Tyson says: "I have used the succinate a great deal and find that fewer cases which I have placed on sodium succinate have returned for treatment than under any other remedy, so that I have fallen into the habit of using it in every case. Whether or not the succinate is responsible for the disappearance of the attacks I can not say."

The use of olive oil to facilitate the discharge of gallstones is often advised. Massive doses are used, and this is a serious objection in many cases, because nausea may result. This is true of even the best grade of oil. The reasons advanced for the favorable action of olive oil in these cases are: (1) It is a lubricant. (2) It is a cholagogue "unquestionably increasing the secretion of bile, which may account for its apparent influence in favoring the expulsion of these concretions." Musser says: "The use of olive oil is still thought of by those who speak of the solvent action for the remedial treatment of gallstones. I have never seen any relief to the gallstones from the use of olive oil, but I am bound to say that sometimes there is a relief to the symptoms. Such relief, so far as I can see—and I think it is the concensus of opinion generally—is owing to the fact that with gallstones there is usually a hyperacidity, and that because of this there is either simply gastralgia or pyloric spasm. It is the symptoms—the symptoms of hyperacidity—that are relieved when olive oil is administered, and it is the relief of these symptoms that caused the oil to get the credit of dissolving the gallstones in the body."

While we believe that gallstones can not be dissolved in the gall bladder, yet every internist has seen cases in which the patients got rid of their symptoms by internal medication, and believed themselves to be well and never had recurrent attacks. When we consider the fact, as already stated, that only about 5 per cent. of gallstone subjects feel anything of their presence, is it not probable that by internal medication we can restore the normal condition of the gall bladder and biliary tract and have the gallstones in their latent state in at least a fair percentage of our cases? Deaver says: "I can not refrain from calling your atten-

tion to the fact that cholelithiasis can remain latent until Nature places the patient asleep in the everlasting sleep of the grave."

The treatment of these cases at mineral springs is of unquestionable benefit. Nearly every mineral spring is advertised as a specific in all forms of diseases of the liver, but those of the alkaline-saline group are the ones that are indicated. Crook says: "We do not know whether the efficacy of these waters depends solely upon the formation of a thin, liquid bile, by which gallstones are readily washed downward, or whether the bile is rendered so strongly alkaline as to effect a solution of the components of the stone." But as Neimeyer has justly remarked: "We should not delay prescribing this treatment till the mode of its action is explained." By their detergent effect these waters also act well in icterus, due to catarrh of the bile ducts and a chronic congestion of the liver. A moderately strong alkaline-saline water may be found of service in the symptomatic gastric and intestinal disturbances which are liable to be present.

It may be stated that the sphere of mineral waters in medical practice is chiefly auxiliary or supplemental to other forms of treatment. A serious drawback to the treatment is the indiscriminate manner in which they are used. Patients going to the springs rarely think of consulting the resident physician at the resort who alone is competent to advise them as to the use of the water. I am confident that the water of some of these springs is an effective remedy in gallstone disease, and I always advise my patients to consult the attending physician and be entirely under his guidance.

Kehr says: "An internal treatment or a Carlsbad cure I recommend to patients: (1) With acute obstruction of the choledochus so long as it proceeds normally. If it drags along, if fever occurs, if acceleration of the pulse, if cholangitis symptoms appear, then operation may be considered. (2) With inflammatory processes in the gall bladder, with and without jaundice, if they occur rarely and not too violently. Indeed, the pain does not always correspond to the severe pathologic changes in the bile system and in the abdomen, so that the subjective troubles of the patient ought not to be for us physicians decisive, but we will in such cases, even with a clear data of palpation, not always succeed in our recommendation for operation, since the patients yield themselves to operation only because of unendurable distress. (3) With frequent colics, each time attended with a passage of stones. If the colic recur very often without the passage of stones, then operation is indicated. (4) Who suffer from obesity, gout, diabetes or in whom on account of affections of the heart, lungs, kidneys or liver, the danger of anesthesia comes into consideration. (5) Who have undergone operation. I have already repeatedly said that I would most gladly send every gallstone case which had undergone operation to Carlsbad."

In conclusion, let me state that it is my opinion, based on an experience of twenty-five years devoted to the practice of medicine, the

last eight of which have been largely, although not entirely, given to abdominal surgery, that gallstone diseases are borderland cases. Some can be treated successfully by the internist and others must go to the surgeon. As internists we must not insist on treating every case, and as surgeons we must concede that there are some cases that will yield to internal medication. Many cases get entirely well, or if they do not get well and the stones are not passed they become latent, and the patient is satisfied. Whether any remedy is of any efficacy I do not know, but I do know that with internal medication a large per cent. of these cases get well.

DISCUSSION.

Dr. E. F. Wells:—I have listened to Dr. Kennedy's paper with much pleasure, and I am glad that a surgeon takes such a conservative view of the surgical side of gallstone disease. The best medical treatment for gallstone disease is still unformulated, and there is nothing more fallacious than "experience" in this field. For example, a man of 70 had, during middle life, many attacks of gallstone colic, with some jaundice. He took a certain kind of wine and was relieved. After 25 years he had another attack, followed by jaundice, with the passage of a small stone. A lady, in young womanhood, had many attacks of colic. At 54 she had a severe attack with the passage of gallstones. Following this she had an infection of the gall bladder, for which she was operated on, and a very large number of round stones were removed. In this particular case the marvel was that the patient remained so long free from attacks with the gall bladder filled with small, round, smooth calculi.

One can understand how faceted stones may lie indefinitely in the gall bladder and give no trouble, but how the small, round stones can lie there for years and not cause trouble, is difficult to understand. I have not the full confidence in the power of drugs, including mineral waters, to relieve the symptoms of gallstone disease, but I agree with the doctor that a comparatively few or certainly not a very large proportion of persons having gallstones need to be operated on. When we consider that one out of five women and one out of twenty men have gallstones, and the vast majority go through life without symptoms, we can understand that the existence of gallstones does not always mean operation; but operative measures are required in many of these cases for the relief of a present peril, and when necessary, should be resorted to promptly.

One remark made by Dr. Kennedy I fully appreciate, and that is the disinclination, the objection that many patients have against operative measures in gallstone disease. But if our judgment as to operation is correct, we need not waste valuable, possibly essential time in presenting the case to the patient, never so strongly and urge that he submit to the operation. I do not believe that the patient should be asked whether he would like an operation done. Ordinarily the case should be decided by the physician and the patient operated on without more than his tacit consent. My experience has been that patients do not hold out in their objection if the matter is presented to them properly.

One point that I believe is not fully appreciated by some physicians is the character of the pain, as between gallstone colic and appendicitis. The latter is a prostrating pain, the patient desiring to lie quiet; but gallstone colic is a restless pain—the patient constantly changes his position, sits up, gets upon the hands and knees, leans forward and rolls from side to side, and becomes worn out in his agony. Those who have seen many cases of gallstone colic will have little difficulty in recognizing it.

As to the medical management of the quiescent cases. In my own practice I lay great stress on a diet in which the patient is given foods that are taken care of below the stomach, so that this organ remains quiet as much as possible. The lack of stimulants in the diet advocated in preventing the drawing forth the gastric juice may have something to do with preventing and quieting the slighter attacks of pain. My diet would be cream soups, farinaceous foods of all kinds, potatoes, rice, succulent vegetables and fruits, etc. Eggs, meats, fish and foods requiring much activity on the part of the stomach are to be avoided.

Dr. A. Beleharn Keyes:—I recall cases of gallstones treated with olive oil, that have not so far as I can learn, had a recurrence of the attacks of colic. Other cases have gone on from year to year with an occasional attack but refused operation. In one case this condition went on for 53 years with a palpable gall bladder and in another for 25 years, then rupture into the bowel and evacuation.

We accidentally find at the postmortem frequently numbers of gallstones in the gall bladder in people who gave no history of gallstone colic. In the use of oils great care should be given to the selection of the oil. In this country the so-called olive oils contain enormous quantities of cotton seed oil. Pure olive oil can be obtained and we should take the pains to get it.

I am undecided whether all gallstone cases should be operated on or not. I feel that if I had gallstones I would want them removed. So long as they remain in the gall bladder there is always the possibility that colic will follow also the complications due to impaction of a stone in the cystic or common duct, also from the constant irritation of the mucous surface, a carcinoma of the gall bladder.

While I believe in conservatism in this age of surgery, a sharp line can not be drawn between conservatism and operative measures. Perhaps we are erring a little too much on the side of surgery, yet, on the other hand, we must not lose sight of the fact that surgical measures will give relief in many cases where other measures will fail.

Dr. F. B. Turek:—Until we know the pathology, we can not take an absolute stand as to what group of cases are surgical, and what group are medical. Experimental work on animals has shown that cholangitis does not occur until there is a bacteriemia. We do not find changes in the gall bladder from the bacteria that may travel up the common duct from the duodenum. Injection of bacteria periodically into the circulation produces cholangitis and all the changes that favor the formation of gallstones. The development in the bile of certain bacteria that precipitate cholesterin and of bacteria that decompose bile salts and cause the formation of stones, is very significant. Bacteria seldom pass through the walls of the stomach. There are few bacteria in the intestine, except in the cecum, where they pass more readily through the wall of the bowel than elsewhere in the gastrointestinal tract.

The oil treatment mentioned is not an oil treatment at all; it is a soap treatment. The oil forms soap, which stimulates secretin and that is a hepatic stimulant, which increases the flow of bile and favors sterilization as the flow of bile clears out the infective conditions in the biliary tract. No one expects the olive oil to dissolve the stone or lubricate the duct or duodenum so that the stone will slide down more easily. The use of the old-fashioned soap pill is an empirical explanation of the value of oil which forms soap in these cases. The recent work of Bayliss and Starling shows that soap will stimulate the formation of secretin and that oil is useless until soap is formed. I have used soap water lavage of the stomach for many years to overcome stagnation and produce free drainage, for it is the infection that causes most of the trouble. The use of oxgall is also valuable. The artificial salts are not as good as the old-fashioned oxgall and soap pill.

Gallstone disease following typhoid and of cholangitis following typhoid are due to bacteriemia. In ordinary infection the colon bacillus passes through the walls of the cecum, and one of the important steps in the treatment, then, is to rid the cecum of bacteria by means of lavage of the colon with soap, cleaning it out thoroughly and producing free drainage by stimulating peristalsis with colonic pneumatic gymnastics. Increasing the peristalsis also of the stomach and duodenum, to carry off the secretions, favors drainage. The use of cold water in the colon stimulates circulation and increases the flow of bile.

The matter of diet is important. I have found that withdrawing all food that acts as a culture medium for bacteria in the cecum, especially, is of great value. I have used extractive-free meat, and hydrolyzed meat, which is freed from connective tissue, which is digested in the upper tract leaving no residue, and thus seems to rid the cecum of bacteria. To help clear out the bacteria, I use bran or some other non-fermenting form of cellulose. If we can not drain these cases in any other way, surgical intervention is necessary.

Dr. William Fuller:—Dr. Kennedy is entitled to our congratulations for having outlined such an excellent medical treatment for gallstone disease, and we value it all the more, coming as it does from a surgeon and one who is familiar with cures of this condition by surgical treatment. There is no doubt that a certain per cent. of gallstone diseases are curable by medical means only, but it is always a matter of extreme difficulty to select these particular cases. Owing to this well known fact, and the prompt, satisfactory and complete cures in gall bladder diseases, which follow early operations, before extensive pathologic changes have taken place, surgeons have come to look with disfavor on most measures short of surgical operations. In view of this it appears that surgery offers the best results in the greatest number of cases.

I agree with Dr. Wells that the operation for the removal of gallstones is a grave procedure, but must insist that it is so only in neglected cases—cases in which procrastination has been the rule necessarily surrounding operative interference with more or less danger. It is very true, as has been stated, that empyema of the gall bladder should be operated, but in nearly all such cases it should be remembered that we are operating for a condition the result of neglected gall bladder diseases.

There is probably no safer major operation than the one usually performed for the early removal of gallstones.

Dr. A. W. Baer:—If you give a patient a good dose of olive oil, you will find cholesterin in the stools; it relieves the acidity in the intestinal canal, and in that way does good. Dr. Wells' suggestion of starving the patient appeals to every one, because they always improve under starvation temporarily at least. The principal thing is to relieve the congestion of the gall bladder and increase the viscosity of the fluid. I think that the galvanic current will give more permanent relief than any medicinal agent mentioned, and it will reduce the viscosity of the fluid as nothing else will. Any thing that will reduce the acidity is beneficial, but the galvanic current is the best for all purposes.

Dr. C. L. Wheaton:—I think that Dr. Kennedy's paper sounds a commendable conservatism. There are no more trying cases in our practice than gallstones. Of course in those cases where we must differentiate between malignancy, inflammation of the duct and obstruction, there is only one alternative and that is to give the patient the benefit of an exploratory operation.

Dr. Max Reichmann:—I have made a number of experiments to determine the possibility of diagnosing the presence of gallstones by means of the Roentgen ray. Dr. Carl Beck, of New York, has done much work in this field, but my results did not agree with his. I rayed two condoms, one containing bile, and the other containing bile and a cholesterin stone. Both condoms show the same shadows

upon the plates. The Roentgen rays can not differentiate between bile and stones, except when the stone contains a large amount of lime.

Dr. Kennedy (closing the discussion):—The essential thing is to get drainage. If we can do this by means of medicine, well and good; if not we must resort to surgery. What I object to is the teaching of some surgeons that all cases of gallstone disease must be operated. I believe that speaking of these cases as a class, we ought to consider them as surgical conditions. I do not believe in procrastination, but we must be diligent in our search for cases that will yield to internal medication. Every internist will say that a vast majority of these get along comfortably for many years without operation, the infection of the biliary tract having subsided, and the gallstones remaining in a latent condition. We ought not to say that all cases should be treated by the internist, neither should we send all cases to the surgeon.

In conclusion I desire to say that in my opinion there is a place for internal medication in the treatment of gallstone disease.

VERTEBRAL AUSCULTATION IN THE DIAGNOSIS OF BRONCHIAL ADENOPATHY.*

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PRELIMINARY REPORT.

There appeared in the *Bulletin of the Academy of Medicine*, Paris, in January, 1907, a description by D'Espine (Geneva) of a method long practiced by him of determining adenopathy of the bronchial and cervical lymphatic glands. D'Espine's observations were confined to infantile tuberculosis and bronchopneumonia following measles and whooping cough. Attention is also directed to the fact that gland tuberculosis may be present in children long before pulmonary signs of the disease are discoverable. The glands, in such cases, often present the only evident focus of tubercular infection. The article describes, in detail, the normal and abnormal respiratory and voice sounds heard over or near the spinal column, laying stress on bronchophony when found at any point between the seventh cervical and fourth dorsal vertebræ.

As to the origin of the bronchophony it is well to remember the anatomical relations of the spinal column and the tracheo-bronchial tract, together with the peribronchial glands. Normally, the glands lie close to the bronchi and trachea. When enlarged and tumefied they occupy much more of the tracheo-vertebral and broncho-vertebral space and may provide an abnormal sound-transmitting medium which will modify normal vocal resonance heard over the vertebræ. D'Espine further describes an acoustic phenomenon, which he terms "Chuchotement" (whisper), to which I have given the name "whisper-concomitant."

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In taking up this subject of vertebral auscultation it is necessary, primarily, to familiarize oneself with the normal phenomena of the postcervical and upper dorsal regions before proceeding to a study of the morbid signs. The normal tracheal respiratory murmur is found by listening over the cervical spines between the occiput and the sixth or sometimes the seventh cervical vertebra. Below this point the murmur assumes the bronchial character. The tracheal vocal resonance is most intense between the occiput and the fourth cervical vertebra, losing some of its strength as we progress downward to the sixth or seventh cervicals. Below either of these points a definite change takes place, the bronchial vocal resonance begins here and manifests itself as a relatively weaker tone than the tracheal. This bronchial vocal resonance weakens in intensity downward until, at the level of the fourth or fifth dorsal vertebra, it merges into the normal vocal resonance of the adjacent lungs.

Not all normal individuals present the same resonant characteristics; even as voices are different, so are the tracheal and bronchial notes, as regards intensity. In some persons the tracheal tone observed in this locality is nearly as distinct as when heard over the larynx, for instance, in persons of sonorous voice and little adipose. Some voices are clear, others rough and husky. Certain children's voices are husky and lacking in resonance, owing to laryngeal disease—this point must not be forgotten when this auscultation is practiced.

Departures from the normal are: 1. Bronchophony. 2. Whisper-concomitant. 3. Extension downward of tracheal resonance. 4. Cessation of vocal resonance at the level of the sixth or seventh cervical vertebra. 5. Distant tone at some point between the occiput and the fourth dorsal vertebra.

I. Bronchophony I have never found above the fourth cervical spine. The normal vocal resonance must be carefully considered above this point, else it may be mistaken for bronchophony, an error easily made, as the tracheal tone is here most intense. Sometimes the bronchophony will not be readily heard when the stethoscope is placed directly over the spine of the vertebra; in such cases placing the instrument a little to one side, its axis being directed toward the body of the vertebra, will elicit the sign. I have found it as far down as the fourth dorsal vertebra (spine).

II. The whisper-concomitant may be heard over the same area as the bronchophony. It is detected synchronously with the voice sound and seems to be superimposed upon it. It might be represented by drawing a thin line parallel to a broad one, the thin line indicating the whisper, the broad one the voice sound. This whisper phenomenon is much more common in children than in adults. It may be differentiated from the husky voice by its dual characteristics above described, which appear simultaneously, while the husky voice offers a roughened vocal resonance simple in character. Certain voices are characterized

by an aspirate sound after enunciation; here the whisper, while distinct, does not accompany the vocal tone, but is definitely postphonate.

III. Extension downwards of the tracheal resonance below the seventh cervical is frequently noted in adults whose bronchial glands have become tuberculous. When found together with dulness in the scapulo-vertebral space, the case is usually well advanced. In cases of emphysema, the chest being markedly dilated, it is occasionally not easy to exclude tuberculosis. Recourse to vertebral auscultation offers certain almost constant findings; if the emphysema is not complicated by a phthisis we will find a sharp change in the vocal resonance at the level of the sixth cervical spine—a definite lessening of tone volume, due to the interposition between the tracheo-bronchial tract and the vertebræ of the dilated lungs.

On the other hand, should tuberculosis be present in a patient, old enough, let us say, to have a chronically dilated chest, then the tracheal intensity will be found to extend downward to the level of the third or fourth dorsal vertebra. That the bronchial glands are enlarged and tumefied is often shown in these cases by the extent of percussion dulness in the scapulo-vertebral space.

IV. In some patients there is found a spot at which the vocal resonance suddenly becomes distant, while, above and below, the vocal tone is full and resonant. I can explain this only by assuming that a softened gland, poor in sound and conduction, lies between the respiratory tract and the vertebra at this point. Another phenomenon which I have observed in a few children is the occurrence of a split syllable. As the child counts "one, two, three," the "three" is heard to be distinctly disyllabic, this, even when the word "three" is properly pronounced in one syllable. In the five or six cases in which this peculiarity was noticed, bronchophony, cervical and axillary adenopathy, and other pathologic signs have not been wanting.

The whisper-concomitant and bronchophony have been, in a large majority of cases, accompanied by other indications of infection, as enlarged cervicals and axillaries, flattened chest walls, percussion dulness, change in the pulmonary respiratory murmur, or even signs of established open tuberculosis. In certain cases the signs under discussion are found after pneumonia or measles or whooping cough; in such cases they disappear after a few months. When they are due to tuberculosis they remain practically permanently. By way of indicating the frequency with which bronchophony and the whisper occur I submit the following:

Of 80 children, inmates of a Polish orphanage, and all of poor parents of the laboring class, 7 showed bronchophony, while in 3 the whisper was found. Of another series of 89 children in a Jewish orphan asylum, all of the impoverished refugee class, and among whom there is much tuberculosis, 17 showed the bronchophonic sign, while the whisper-concomitant was heard in 4 more. In a third series of 139 asylum chil-

dren, bronchophony of the whisper-concomitant was heard in 40. In 12 of these latter the signs disappeared within one month. Of the remaining 28, 15 gave the cutaneous tuberculin reaction (v. Pirquet), 5 non-reacting children had had recent whooping cough, 14 gave physical findings indicative of abnormal thoracic condition, 21 had enlarged cervical or axillary glands, or both, 12 showed venules (dilated capillaries) over or near the seventh cervical spine. However, of the 105 other children of this group in whom bronchophonic sign was not discovered, 9 presented physical findings more or less definite, while in 6 only a slight expiratory prolongation at the apex was found. In 4 cases the sign was found between 3 and 5 years, in 12 at 6 years, in 13 between 7 and 13 years. In regard to the dilated capillaries, 17 were coincident with the v. Pirquet reaction, 24 occurred without it.

As to the value of vertebral auscultation in adults, more reliance will, of right, be placed upon the usual methods of diagnosis, physical and laboratory. But in children, where the glands are so often primarily affected, it is obvious that any diagnostic which promises us the opportunity to discover deep-seated adenopathy must be of prime importance. Long before the frank signs of open or so-called incipient tuberculosis present themselves begins the period of latency, for which read *Tuberculous Glands*.

It must be admitted that, in the absence of postmortem work on this subject, it is impossible to assert that bronchophony or the concomitant whisper are positively indicative of adenopathy. Nevertheless, the nearly constant appearance of the phenomenon in the presence of recognized signs of pulmonary disease render it extremely probable that the significance here attached to it is justified. Much more work remains to be done on the subject—more careful analysis than that already made must be carried out before we can speak with certitude.

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DISCUSSION ON DR. GRAY'S PAPER.

Dr. Theodore B. Sachs:—Manifestations of tuberculosis are present in a large number of children of tuberculous parents. In some of them physical signs of pulmonary involvement are demonstrable; in others—localization in various organs, as joints, bones, etc., is evident, but the number of such cases is small in comparison with the vast multitude of children of tuberculous parentage, in whom repeated afternoon fever, combined with defective physical development, poor nutrition, etc., point to infection and still localization of the infected organ can not be attained with the present methods of diagnosis. Lately in examining 200 children of tuberculous parents in congested districts of this city, I have been astounded at the very large percentage showing evidences of infection.

In children, tuberculosis manifests itself differently, than in adults; physical signs of pulmonary involvement are generally less pronounced and the number of cases with indefinite signs and symptoms are numerous. In a large number of these, bronchial glands bear the brunt of infection and in an effort to localize the site of infection D'Espine's diagnostic method is of great assistance and Dr. Gray has done good service in calling attention of the medical profession to this very important method of disclosing bronchial adenopathy.

In normal children the characteristic tracheal breath sounds generally cease below the sixth cervical vertebra, while in a large percentage of children of tuberculous parentage, in whom indefinite manifestations of tuberculosis are

present, the breath sounds retain their tubular character frequently down to the fourth dorsal vertebra or lower. The vocal resonance, so pronounced over the cervical spine, abruptly ceases in normal children at the seventh cervical vertebra, while in tuberculous children it may partially retain its character (resembling bronchophony) down to the fourth dorsal or even lower. This intensification of vocal resonance (possibly due to interposition of enlarged bronchial glands) while not yet entirely clear as to the manner of its production, deserves further study.

Vertebral auscultation is of great importance and, if elucidated in the future by postmortem experience, may prove of great value in diagnosing bronchial adenopathy so frequent in tuberculous children.

Dr. F. Tice:—We have found in auscultating that there is no fixed standard. Each child apparently has its own standard, so that one must examine carefully and determine variations. We know that tuberculosis in children manifests itself first of all very frequently by involvement of the glands. If v. Behring's idea is correct, we know that we have pulmonary tuberculosis secondary to intestinal tuberculosis. If we examine the lungs as we formerly did we will overlook the initial stage of tuberculosis in children, but if we employ the method described by Dr. Gray, we will frequently be surprised by the presence of evident glandular involvement. We are now in a position to make an earlier diagnosis in children than formerly. We know that in adults one of the early signs is a diminution in the expiratory excursion or a change in respiratory murmur either inspiratory or expiratory. This we can not determine in a child, but we can determine the changes described by Dr. Gray, and I am sure that they correspond very well with the cutaneous reactions. I would recommend the method and consider it worthy of careful trial and investigation.

Dr. Gray (closing the discussion):—It is very important, as Dr. Sachs indicated, to carefully examine the children in the family of a consumptive, for, in this way alone can we discover any considerable number of incipient or latent cases. Frequently, in a consumptive's family of say six members, we will find two or three other cases of tuberculosis. These early cases rarely come, of their own initiative, under the care of the physician. They must be sought for if we are to treat tuberculosis in its incipiency. Eternal vigilance alone will prevent the recruiting of the vast army of consumptives.

SKIMMED MILK AS A TEMPORARY FOOD FOR INFANTS.*

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At the outset I desire that it shall be distinctly understood that I do not advocate skimmed milk as a permanent food for infants nor a food to be used for a long period of time, but I wish to emphasize its great value in nutritional disturbances and certain other diseased conditions. All of our text-books on pediatrics and nearly all of the papers and discussions on the subject of infant feeding have laid great stress on the idea that it is the proteid element of cow's milk which is so difficult of digestion by the infant and that the great difference between the curds formed from human milk and from cow's milk causes the principal difficulty in the artificial feeding of infants. So widespread is this teaching that those so-called large, thick, tough cow's milk curds have been the fear of the physician and the joy of the proprietary food agent who

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proudly demonstrates how his particular food makes cow's milk exactly like human milk. But is this idea of the indigestibility of the proteids the truth and should we accept it now without question?

German authorities have maintained for a long time that the proteids of cow's milk cause no digestive or nutritional disturbances in the infant and that the contrary idea is based on faulty observations, such as test tube experiments, the appearance of so-called curds in the stools, etc. Czerny and Kellar, in particular, maintain that the casein is easily digested and broken up by the peristaltic movements of the stomach and intestines and that we need have no fear of it whatever, and all pediatricists admit that this proteid is the most valuable part of the milk for the growing child.

Men interested in infant feeding in this country have been slow to accept this teaching of the Germans, and it has remained for some of our own Chicago workers to adopt this principle and push it to the front. The classical paper of Walls one year ago on the harmlessness of cow's milk proteids is the first on this subject in this country. His conclusions are as follows: "There is no evidence that the proteid of cow's milk causes any digestive disturbances in the infant, but that all experiments prove that it is easy to digest. Also that sterile fat-free milk is an unequaled therapeutic agent in the treatment of nutritional disorders." A considerable experience by others along this line confirms these conclusions as being correct. Experience also proves that a large percentage of cases of indigestion in infants is caused by overfeeding or by feeding mixtures too rich in fat. Overfeeding results from too great an amount at one time or from feeding the child at too frequent intervals.

Food rich in fat results from the use of top milk mixtures or from the addition of cream to the baby's food. For such cases the use of skimmed or fat-free milk fulfills a double indication: First, it overcomes the overfeeding at once, because the caloric value of the skimmed milk is low, it being only eleven calories for each ounce, whereas whole milk contains twenty-one calories in each ounce and cream mixtures usually more. Second, the cream or the fat in the mixture which is the offending element in the majority of these cases is almost entirely lacking in the skimmed milk.

The general idea has been that the so-called curds appearing in the stools of infants indicate that too much proteid is being fed. That this idea is wrong can be proved by a chemical examination of the whitish lumps which shows that they are not usually casein or proteid, but are composed of fats or soaps. Then, too, such curds will quickly fail to appear in the baby's stools if the cream or fat is omitted from the food. In a few cases, it is true, these curds consist of casein, but even then they will disappear on a fat-free proteid-rich milk. It would appear in such cases that the fat or cream taxed the digestive power of the infant to such an extent that a part of the proteid went through undigested.

I believe that much of the success of the buttermilk feeding of infants in the past has been due to the fact that the mixtures were made with buttermilk left after churning butter and hence were fat-free mixtures.

Of course, nowadays buttermilk is usually made from the whole milk, but if it is desired to feed a fat-free mixture one can make buttermilk from skimmed milk. Most of the cases for which buttermilk is recommended will improve just as quickly and as well on a simple skimmed milk formula. And how much less trouble or liability to mistakes in feeding, particularly when the food must be prepared in a private house.

In feeding skimmed milk mixtures, it is not necessary to add citrate of soda, lime water, barley water or cereal decoctions, for, with the fat removed, it will be found that the proteids are perfectly digested and cause no trouble by simply adding sterile water as a diluent. This method also does away with the necessity of splitting the proteids, as it is called, or of feeding whey mixtures in which the proteid content is so small as to be of little food value.

The use of fat-free milk mixtures is indicated in cases of gastrointestinal indigestion, both acute and chronic. In the acute summer diarrheas they are especially valuable. In fact, skimmed milk can be given in any pathologic or disturbed condition of the intestinal tract, however severe. In any of the febrile conditions in infants from other causes, when the ability to digest any food is lessened and whole milk may be rejected, a skimmed milk mixture will be easy of digestion and cause no trouble. Perhaps a few practical points as to the methods of using skimmed milk will be helpful.

In the acute and chronic cases the intestinal canal of the patient should be emptied by a laxative as usual, then for the first twenty-four hours it is well to allow the digestive organs to rest by giving only sterile water or barley water. The next day the skimmed milk mixture can be given, diluting the milk according to the child's age with two-thirds or one-half water for young babies and less water for older ones. Sugar may be added to sweeten the mixture and increase its food value. The child should not be fed oftener than three-hour, or better four-hour, intervals. The quantity at each feeding should also vary with the infant's age from two ounces at 1 month old to six or eight ounces at 6 months old. This mixture should continue until the stools become normal, which will occur in a few days, depending on the severity of the indigestion. No other medicine than the preliminary laxative need be given in these cases, and it is remarkable when properly managed how quickly they will respond. The vomiting ceases, the restlessness and fever stops, the stools soon become less frequent, yellow in color, homogeneous and pasty, with no bad odor. As soon as this occurs the child will begin to be more hungry and demand more food and the mixture can now be strengthened by gradually substituting whole milk for the skimmed milk. At first one-third to one-half of the skimmed milk is replaced by whole milk, then in a couple of days more whole milk can be added and soon all whole milk can be used instead of the skimmed milk and the mixture made suitable for the child's age and strong enough to insure its growth.

When the child's food is prepared at home and the case is one of moderate severity only, it will be sufficient to instruct the mother or nurse to simply pour off the cream from the bottle as it comes from the

milkman and use what is left, although such skimmed milk contains 1 per cent. of fat or more. In severe or critical cases it is necessary to obtain a fat-free milk from which all the cream has been separated. This can be purchased at a milk laboratory or will be delivered by the Walker Gordon firm. Even such milk has a small percentage of fat, sometimes as much as one-half of 1 per cent.

The description of a case which came under observation two weeks ago is of interest as being typical. This was a babe, 3 months old, fed since birth on condensed milk, at irregular intervals and with little attempt at cleanliness in its food. The child had gained only four ounces since birth, was restless and crying, vomited and had frequent stools, greenish in color, of bad odor, and mixed with mucus and undigested milk. The discharges were irritating, so that the buttocks were eroded and almost raw. Barley water was given alone for the first day and a dose of castor oil prescribed. The next day a mixture of half skimmed milk and half water with sugar to make it about a 6 per cent. solution was prescribed, four ounces to be fed every three hours. The vomiting ceased after a day or two, and in four days the child was having only three bowel movements in twenty-four hours, which were completely digested, normal in color, no bad odor and none of the so-called curds. The skin over the buttocks began to improve at once and in a week was completely healed. Whole milk was then gradually substituted for the skimmed milk, and the child is now beginning to thrive as it ought, is not fretful and sleeps well.

This case is typical of the many which could be cited by those who believe in and practice this method of feeding. In conclusion, it should be said:

1. The theory, that the proteids of cow's milk cause the principal difficulty in its digestion by infants, in the light of recent research and clinical investigation, is untenable and should not longer be taught.

2. Skimmed milk is a valuable temporary food in digestive disturbances of infants, nutritious and easily digested.

3. If there are some to whom this newer method seems somewhat radical and at variance to what they have been taught, I would simply say—try it and be convinced of its truth.

427 East Sixty-Third Street.

THE NOSTRUM AND PROPRIETARY MEDICINE PROBLEM FROM THE STANDPOINT OF A COUNTRY DOCTOR.*

H. A. PATTISON, M.D.

BENLD, ILL.

The nostrum and proprietary medicine question has been receiving more pronounced attention during the past few years than ever before not only by the medical profession, but by the laity as well. Hardly an issue of *The Journal of the American Medical Association* appears

* Read before the Macoupin County Medical Society, Carlinville, Ill., April 28, 1908.

that does not devote some space to a consideration of the subject. Upon first thought it may appear a somewhat wearisome and unnecessary prolongation of the discussion. But I am convinced that the evil is so deep seated and the subservience of the profession to the pharmaceutical manufacturers so great that the subject should be kept constantly before our minds. And not until I began the preparation of this paper did I realize how complex the problem is. There are so many factors involved that only by constant agitation, free discussion, and contribution of ideas by many different practitioners can a solution be reached. The belief in this necessity for continued discussion is my only excuse for this slight contribution.

But discussion alone without action will avail us nothing. Unless individual responsibility is realized, leading to individual reformation, we are liable to lapse into the old ruts which, happily, the profession seems now to be leaving.

Sufficient proof has already been presented in the journals to establish the fact that there has been a widespread practice of prescribing and dispensing nostrums and so-called "ethical proprietaries." To prove that here in our own county we are not free from the habit it is only necessary to ask any pharmacist to give you a list of proprietaries prescribed during the last three months. You will get a list something like this: Dioivurnia, Saline Laxative (Abbott), Borol, Borolyptol, Glycothymoline, Listerine, Antiphlogistine, Syrup of Codeine (Bell), Unguentine, Sevetol, Kasagra, Calalactos, Tongaline, Iodine Petrogen (Wyeth). The prescriptions for this last proprietary article will be of recent date, because the samples have only recently been distributed. To be sincere in my condemnation of this list I am forced to admit that two or three of my own prescriptions called for proprietaries.

There has been no little discussion as to the meaning of the words "nostrum," "patent medicines," "proprietary remedies" and "ethical proprietaries." I do not care to offer any definitions, but would like to offer an opinion as to what are permissible. Certain single remedies with a trade or brand name (e. g., phenacetin (Bayer)) may properly be prescribed. The exact chemical formula for the above-named drug is perfectly well known and has been entered in the U. S. Pharmacopœia under the name acetphenetidin. This is the preferable name for the article, if the druggist has the U. S. P. standard. I purchased acetphenetidin manufactured by a firm of well-known chemists. It looked as much like phenacetin as powdered pumice and had just about as much activity. So if a reliable acetphenetidin is not available it is quite right to specify the special trade-named article.

If a compound has an open formula that gives every ingredient and its quantity, including vehicle, adjuvants and solvents, and it is not advertised to the laity, it is permissible to prescribe it. Though it is permissible, it is not always expedient. Numerous elixirs of pepsin, bismuth and strychnin are on the market. Claims of superiority are made for all of them. One was found to contain an excessive amount of solvent for the bismuth which precipitated the strychnin. Elixir of pepsin, bismuth

and strychnin, N. F., is perfectly reliable, uniform and always available. And so it is with scores of other preparations.

It would be quite impossible for the busy practitioner to work out his own compound prescriptions for every case that came to him. It would require an enormous amount of constant study and a broad basic knowledge of pharmacy as well. Even then many of the prescriptions would be very defective as regards both appearance and action. Through the work of past generations many formulas of more or less value have come down to us. Generally devised by a physician, they have become popular in proportion to their value. Many of the best ones are entered in the U. S. Pharmacopeia. There are still other valuable formulas which are not yet recognized by the Pharmacopeia for various reasons. That such formulas might be preserved and that there might be an authoritative standard, they have been gathered into a National Formulary.

This Formulary, published by the American Pharmaceutical Association, and the United States Pharmacopeia, revised and published decennially by a convention of delegates from every state in the Union, representing the professions of medicine and pharmacy, the Army and Navy, and U. S. Marine-Hospital Service, have been made the U. S. government's standards. It is by these standards that we are urged to practice medicine by the American Medical Association, the American Pharmaceutical Association and the National Association of Retail Druggists. Practicing according to these standards, we may know exactly what we are giving and the method of preparation. No matter to what part of the country one may remove, it is not necessary to learn how to prescribe a new set of pharmaceutical "specialties." One simply continues to use the knowledge one has already acquired. The therapeutic armamentarium does not depend upon the continuance in business of some manufacturer, and instead of the feeling that our therapeutic equipment is of an uncertain and transitory nature there develops the sense of security, permanency and growth. Besides these standard resources, the physician has recourse to the standard medical journals and books for new remedies and new combinations.

It is a distinct advantage where all physicians use remedies whose formulas are exact and known. It is particularly valuable in the consultation room for the physicians to have a common *materia medica* and a common source of reliable information. The art of medicine is not advanced if the consultant advises the use of some secret formula, such, for example, as the "normal tinctures" of certain manufacturers who claim a secret process of great value. A new dosage must be experimented with and a death may be the cost of acquiring the *unnecessary* knowledge, the U. S. P. tinctures being sufficient for all purposes.

It is highly desirable and laudable that we be ambitious to make progress. The sample and literature vendors insist that to be successful we must be "up-to-date." Now being "up-to-date" is not necessarily making progress. Constantly trying new remedies only to discard them in a few months means retrogression and confusion. I question somewhat the moral right of the physician in general practice, paid for his services, to

be forever trying new remedies and more or less secret compound specialties exploited by pharmaceutical manufacturers. Most of the new products on the market are not there as the result of a search in the truly scientific spirit for curative remedies, but that they may prove profitable to the exploiters. Serious consideration is demanded for the claims of a new remedy to combat disease or symptoms that come from one of our research laboratories. And such claims do receive proper consideration in current independent journals. But only passing notice need generally be given similar claims emanating from the "laboratories" of pharmaceutical houses and exploited in their advertising periodicals.

Occasionally, I admit, some good can come out of Nazareth; but the opportunities for the proper testing of new remedies are not open to the country doctor. The charity hospitals and dispensaries offer a large field for the proving of new remedies and those that are of real worth will not be lost to the profession at large. I sincerely believe that nearly all clinical excerpts, brochures, monographs, therapeutic notes and medical journals edited and published by pharmaceutical houses may be wisely consigned to the waste basket and the time which would be consumed in reading them be more profitably spent with the standard journals.

Numerous reasons have been put forward for this widespread habit under discussion. The reason most often given as the chief one is inadequate teaching in our medical schools. This is undoubtedly one important reason, but, in my opinion, not the most important. One is not taught in school all there is to know, but is taught how to study. Some one has said that the next best thing to knowing a fact is to know where and how to find it. In the short space of a medical course the student does not become a surgeon. He is taught surgical principles, but he becomes a surgeon only by arduous study, intelligent observation and constant practice, going on from the simple to the more complex operations. So it is with the art of midwifery. And so it should be with the art of prescribing, that by constant study, observation of drug action, conference with the pharmacist and the constant "practice of medicine" the young practitioner becomes increasingly more proficient at the bedside. But unfortunately an easier way is provided. There are those who stand ready to prescribe for the doctor, and that is easier than to work it out for himself. If he would be a surgeon he must *know*; no one else can operate for him. If he aspires to excel as an accoucheur he must *know*; no one else can do the work for him. But not so in the field of internal medicine. The pharmaceutical house stands ready to treat his gastritis, cystitis, tubercular, hepatitis and other cases. Under the conditions that have obtained for years it is not our ethical journals, the Pharmacopeia, National Formulary and leaders in the profession that are teaching us therapeutics, but the pharmaceutical houses, their catalogues and traveling representatives, some of whom are medical graduates unable to succeed in actual practice. Stop and consider a moment if this is not so.

The detail man drops in and shows his wares. He brings to your attention certain of his specialties and emphasizes their therapeutic worth and pharmaceutical excellence. You glance over the formulas and notice

one that seems to be a good one. It may have after it the name of a specialist who has stood high in the profession. He may have been dead twenty years, but that makes no difference. The psychologic impression is the same. These specialties all have some distinctive name which suggests either their ingredients or their uses. You conclude to try, let us say, two hundred "Restonal" tablets. When Mr. Detail Man has gone a patient comes in and says, "Doctor, I am all run down. My tongue is coated, my appetite is bad. I think I need some alterative medicine; something to tone me up." Already the man has suggested the remedy and after a few perfunctory questions you will likely tell him you have just what he needs. Restonal has impressed itself on your mind. The first syllable "Res" stands for restorative; the second, "ton," for tonic, and the third, "al," for alterative. Don't you see how readily the whole psychologic process has led you to turn the tablets from the bottle into the pillbox? Ten to one you can not name all the ingredients of the tablet, not to mention their dosage. The pharmaceutical house has prescribed and you have merely dispensed. And so there is "antinausea," "antidiarrhea," "antidyspepsia" and "ante-up" to the house whether the patient pays you or not. And how many of us have not done something similar to this? And how many of us have never consulted the therapeutic index of the pharmaceutical price current? If those pages were not used the firms would not pay for the paper and printing of them.

I am not presenting these facts as one who is wholly free from this baneful influence. I regret that my shelves show I am still under partial hypnosis. However, since I began cutting out this class of goods, I know that, as a consequence, I am getting better results in my work. What, then, are the chief causes of the evil habit? The pharmaceutical house and the custom of dispensing by the physician. Eliminate the advertising literature and the detail man and the habit is nearly broken. Get some prescription blanks, quit dispensing and the cure is nearly complete. To quote a recent paper, "The commercialism of this octopus (the proprietary industry) is blamable to a great degree for the existence of the awfully funny joke, 'just as good,' that all too common expression, 'up-to-date,' which obliges the pharmacist to load his shelves with duplicates; the nasty word so often mentioned, 'substitution,' and, finally, that two-edged sword, dispensing by physicians versus prescribing by pharmacists."

The manufacture and sale of drugs and their compounds is a commercial undertaking as much as the manufacture and sale of dry goods, breakfast foods, or any other commodity. Salesmen are put on the road to sell goods. Only good salesmen are kept on the road, for if a man can not get orders he loses his place to one who can. The physician is no more resistant to persuasion and persistence than the merchant, and most merchants will sometimes order goods of the traveling salesman that they would not have ordered had they taken longer to consider. There is one salesman coming to my office who, I veritably believe, could get an order out of his worst enemy. These salesmen understand perfectly well that the larger profit is in their specialties and not in standard drugs or corks,

or bottles or labels or surgical dressings upon which they (i. e., their houses) get but a small percentage for handling. It would not be possible for more than half of the present number of pharmaceutical houses to exist were it not for certain peculiar trade-named specialties containing some unknown drug or U. S. P. drug not in common use, such as Senturia Cordial, an aromatic concentrated extract of the green root of *Seanervoeanus Dentura*; Syrup *Coeilana* compound; whatever *coecilana* is I have not yet been able to find out; *Eugenia Cordial*, said to owe its antihemorrhagic virtues to *Tr. Jersey Red-root*. It is a universal trait of human nature to pin faith to the unknown and mysterious in medicine. Even the doctor is not altogether free from this trait. The pharmaceutical vendors know it and are making the best of it.

A few of the N. F. preparations are well known to the profession and demanded. So the jobbing houses put them up—a little bit different than the N. F. formulas. Being different, of course, they are better! The idea is to get you and me into the habit of prescribing this or that compound with the manufacturer's name in parentheses, e. g., *Essence of Pepsin (Fairchild)*, *Cascara Evaeuant (P., D. & Co.)*. This is the chief aim of many of the houses that exist only because of this proprietary medicine habit. If you are not convinced of this watch their methods and try to order a few N. P. preparations. Your experiences, if they are similar to mine in the last three months, will thoroughly disgust you with the present state of affairs. By the expenditure of hundreds of thousands of dollars in advertising, by the distribution of literature, blotters, ink-stands, paper cutters and, worst of all, by a subsidized medical press, the pharmaceutical houses have us just where they want us. They want to keep us there and it depends only upon ourselves whether we shall "stay put."

My first intention was to say nothing about the practice of dispensing. But one could as well discuss the trust problem without mentioning the tariff as to discuss the nostrum evil without reference to dispensing. A large majority of the physicians in our villages and larger towns dispense their own medicines, and not a few city physicians do the same. Why they have come to do it is of importance. The practice undoubtedly was started by the country doctor whose patients had no pharmacist to go to. Then some physician tried it to draw business. It was a sort of advertisement, just as *x-ray*, vibratory machines, etc., are sometimes made use of as a sort of advertisement. Practically all homeopathic physicians are compelled to dispense their own medicines because there are no homeopathic pharmacies outside the large cities. Presently one doctor and another began to dispense because the other fellow was doing it. Finally the young graduate going into a town discovers that the established doctors are nearly all dispensing and he feels that he must do likewise. So the custom has become established and it proved the great opportunity of the pharmaceutical houses, which they were not slow to embrace. By endeavoring to supply the every need of the dispensing doctor not only of drugs, but of pillboxes, envelopes, letter heads, labels, cards, eye droppers, test tubes and solutions, litmus papers, thermometers, etc., the

physicians have come to depend upon the detail men. So the growing habit of the doctor invited the efforts of the detail men, and the work of the detail men has lulled the doctor into a sense of dependence. And thus the pendulum swings.

If we had the time and requisite skill to prepare our own combinations as each patient required, dispensing would not be so baneful. But the great tendency is to routine practice—pouring from the stock bottle into the dispensing bottle or box. It is not an individual prescription for each patient, but a single compound for many patients. It is a great temptation to buy cheap drugs. It is almost necessary because the dispenser's drug bills are so high.

The laity are rapidly forming the idea that they are going to the physician not to pay a fee for his opinion, but to buy a bottle of medicine or a box of pills. Not all of them will understand that a charge, say, of 75 cents, means 50 cents for the consultation and 25 cents for the medicine. They know they can get three bottles of cough medicine of the druggist for 75 cents. So why pay the doctor that much for one bottle. It may be a tubercular cough which the sanguine consumptive is all too ready to ascribe to a simple "cold." Dispensing by physicians leads to self-medication and counter prescribing. We want to get the public to quit self-dosing; to get an honest opinion as to whether or not the ailing person needs medicine, and to pay an honest fee for the opinion. This we can not accomplish so long as we dispense.

If we refill prescriptions or furnish "some of those headache tablets, like Mrs. Jones got last week," we immediately become merchants in competition with the druggist. Can we then complain if he prescribes over the counter? Suppose we attend strictly to our business. It will not then be at all difficult to convince the druggist that it is to his interest to attend strictly to his business.

The most comprehensive "reason why the physician should not dispense nor the pharmacist prescribe is that each of these distinct professions requires more intellectual power than is ordinarily possessed by one man."—(N. A. R. D. Notes).

There are some incompetent and lazy druggists, just as there are some incompetent and lazy doctors, but these are not representative of their professions. Personally, I have found the pharmacists with whom I have dealt courteous and accommodating—ready to meet me half way.

The National Association of Retail Druggists is anxious that pharmacy shall be restored to its proper place as a profession. The American Medical Association is striving to bring the medical profession to a higher plane that it may maintain its rightful place of dignity before the world. If these two great forces unite in these two purposes the desired ends will surely be accomplished.

This splendid exhibit of National Formulary preparations compounded by pharmacists in this county is evidence enough, I take it, that the druggists here are willing to do their part—to meet us half way. I wish that this society might invite the druggists to meet with us in

the near future and some of the problems be threshed out in open meeting.

It is not possible to revolutionize conditions in a moment. Some local conditions are such that dispensing could not at once be entirely eliminated. But it is possible to cease at once buying and prescribing proprietary specialties and nostrums. A good method is to make a list of all medicines that one uses commonly. Let this list include such simple compounds as are likely to be used in the daily round. These may be listed under the names of the houses from whom you desire to get this particular tablet, pill or granule, for reasons of quality, color, size or shape. When the detail man informs you by card that he will visit you on a certain date, glance through his price current and see if there is anything there that you want that is not on the list. Then note on a slip all you want of that man. In this way you can dispose of him in five minutes. It is a method that will not only save time, but dollars.

It will also save us time, bring us dollars, enlarge our knowledge of pharmacy and gain us the respect of the community if we delegate to the local pharmacist that part of the art of medicine which properly belongs to him.

ILLINOIS STATE MEDICAL SOCIETY

Official Minutes of the Fifty-eighth Annual Meeting held at
Peoria, May 19, 20 and 21, 1908.

FIRST GENERAL MEETING.

TUESDAY, MAY 19, 1908.

The Society met in Music Hall, Woman's Club Building, at 9:10 a. m., and was called to order by the President, Dr. William L. Baum, of Chicago.

Prayer was offered by Rev. J. H. Morron, of Peoria.

Infinite and eternal God, Thou has created all things and creatures and all the forms of life have their source and their supplies in Thee. We thank Thee for the twofold life with which Thou hast endowed us, the life of the spirit, self-conscious, self-determined, capacitated for knowledge and virtue and immortal as thine own; and the life of the body, with its senses and organs, that life which throbs in the heart, pulses in the veins, tingles along the nerves, glows on the cheek, flashes from the eye and rings in the voice. If the structure of our souls proves Thy being, power, wisdom and goodness, so likewise does the structure of our bodies wherein are souls are housed and with which they are weaponed, for they, too, are wonderfully and fearfully fashioned and carry in their members miracles of Thy contrivance. This inner life and outer life Thou hast made mutually dependent, the one upon the other, and hast joined together in a mysterious wedlock which death alone can divorce. The life of the body, however, Thou hast made frail and vulnerable; it is exposed to a hundred hazards each day; it is subject to assault and accident, to multitudinous diseases and to the inevitable enfeeblement and decay of old age. But we thank Thee that from the very beginning Thou hast put it into the heart of men whom Thou hast chosen and qualified for their high service to devote themselves to the welfare of the body, and who have searched the land and the sea and the air for balms and antidotes against its ills. We thank Thee for their love of science and of humanity, for their prodigious and patient toil, for their heroism and self-sacrifice, for their continual and abounding charity. Oh! yes, we thank Thee for the goodly company of physicians, who, with dextrous hands, introduce us into the world and with kindly hands conduct us out of it, and who in the meantime keep the secrets of our households, relieve our pain, mend our fractures, cure our maladies and piece out our declining years. We thank Thee for all that they have discovered and learned in the study and acquisition of the centuries. We thank Thee for the marvels of our modern medication and sanitation and sur-

gery. We thank Thee for the appliances and instruments and remedies by which suffering has been alleviated and lives saved; we thank Thee for vaccine, for anesthetics, for antiseptics, for antitoxins, for assimilating buttons, for drainage tubes and the x-ray with its omniscient gaze. We thank Thee for our colleges and pharmacies, our hospitals and infirmaries, for our great doctors and teachers and for the trained nurse, competent, faithful and gentle as woman alone can be. We thank Thee for the forward rank of the profession of this state among the states of the Union. May all who belong to it count their vocation sacred and never degrade or defame it by quackery or commercialism. We thank Thee for this organization and all that it is doing to promote the general health, to abate contagion, to suppress the white plague, to postpone if it can not abolish death. We thank Thee for the coming of the brethren among us. May their stay in our midst be a pleasant one; may their fellowship with one another be congenial and gainful; may the papers and discussions to which they shall listen or in which they shall take part prove instructive and stimulating. Watch over their families and their patients in their absence. Carry them back safely to their homes. Grant them long to live, every one, and crown them with Thy loving kindness. And now, Thou Omnipotent God, who causeth the wrath and imbecility of man to praise Thee, wilt Thou so direct the proceedings of our oft-convened and long-drawn legislatures that in the end at least they may be characterized by common sense, fair play and patriotism; and wilt Thou move the citizenship of this great commonwealth to send such representatives to the next legislature as shall be responsive to the arguments and the appeals of this public-spirited, wise and humane association.

We offer all and ask all in the name of Christ Jesus, our Lord. Amen!

His Honor, Thomas O'Connor, Mayor of Peoria, was introduced and delivered the following

ADDRESS OF WELCOME.

Mr. President, Ladies and Gentlemen of the Illinois State Medical Society:—I assure you it is a pleasant duty for me to come here this morning to say a few words of welcome to such an intelligent body of men and women. Organization has become a necessity. We have learned this years ago. Organization has done a great deal for mankind in general. Organization has done a great deal for the medical association of the State of Illinois. Organization has done a great deal for each and every physician connected with this organization, and when you are benefited by organization, by your discussions and by the papers read before your meeting, the general public are benefited through you.

I have not come here this morning to take up your time in making any speech to you; I merely came here to welcome you to the City of Peoria. The citizens appreciate the fact that you are honoring us with your presence. We hope and trust that while you stay with us you will take a little time to look over our city. Nature has done a great deal for the city of Peoria. We would have you visit our parks and drives. I know each and all of you will appreciate them. While you are in the

city we want you to go where you will. Each and every citizen is a member of the reception committee to entertain you. The only misdemeanor a doctor can commit while here—and it might be a pretty good thing if it should happen—is to be caught out of the meeting while the sessions are in progress, and in that event he will be taken by a policeman and escorted to this building. (Laughter.)

In the name of the city of Peoria and its 85,000 people, I bid you a hearty welcome. I trust your deliberations here will be of much good and benefit to each and all of you. I wish you all a good and safe journey back to your respective homes, and when you arrive there you will find those near and dear to you, whom you have left behind, in as good health and spirits as when you left. I thank you. (Great applause.)

RESPONSE BY PRESIDENT BAUM.

Mayor O'Connor, Citizens of Peoria, and Local Physicians:—This is the fifth time the Illinois State Medical Society has been entertained in the city of Peoria—the first, I believe, in 1857, and ever since that time the city of Peoria has taken a warm place in the hearts of the profession in Illinois, and in their behalf I wish to thank you and the citizens of your beautiful town for the hospitality and kindness extended to us during the present session. (Applause.)

The next order being the report of the Committee of Arrangements, this report was presented by Dr. E. M. Eckhard, Chairman, as follows:

REPORT OF COMMITTEE OF ARRANGEMENTS.

To say that the Peoria City Medical Society was gratified when it was announced that the State Society had accepted our invitation to hold their annual meeting here would be putting it mildly. The city society immediately began making preparations for your entertainment. How far we have succeeded in pleasing you remains to be seen. The use of the Coliseum, one of the largest buildings in Illinois for its purpose, was put at the disposal of the committee, but, following our rule to do all for the comfort and gratification of the greater body, we abandoned this place of meeting for the Woman's Club Building, for the reason that the noise of exhibitors could not be well kept from interfering with the scientific program. This change was made after plats had been made and space sold in the Coliseum, but the Chairman of the Committee on Exhibits, Dr. W. R. Allison, was equal to the emergency and soon had all the new space sold and all exhibitors well satisfied with the new arrangement.

Your Chairman feels that he owes a great debt of gratitude to all the subcommittees, and especially to Dr. O. B. Will, for his wise advice and help so freely given at all times. It was a misfortune that the Elks chose this point as their meeting place on the same dates as our meeting, but we were not able to prevail upon them to make a change, although it was explained that our date was set by law. Our ample hotel accommodations will, I am sure, prove adequate for all, and we hope no one of our visitors will suffer any inconvenience.

Our Entertainment Committee has varied a little from the monotony

which we felt had heretofore attended listening to long speeches on questions of shop and, knowing the failing of the usual oratorical after-dinner-speaking doctor, for long and tedious speeches, we have substituted artists of another class more interesting and less lengthy.

In conclusion, I wish to say that if you have any criticism to offer, or any shortcoming to complain of regarding the work of the local committee, make it so strong that we will profit by the suggestion, and when we entertain you again, which we believe will be in the near future, being, as we are, the only city capable of taking care of you outside of Chicago, we will be able to remedy the mistake.

In the meantime we open the doors of the city to you and bid you welcome.

At the conclusion of this report, the general meeting adjourned and Section One was called to order.

SECOND GENERAL MEETING.

The Society reassembled at 8 p. m. with Dr. Carl E. Black in the Chair. Rev. Francis J. O'Reilly, Bishop of St. Mary's Cathedral, Peoria, invoked divine blessing, after which President William L. Baum, of Chicago, delivered his annual address. He selected for his subject "The Medical Profession and the Public."* Following the President's address Dr. Charles L. Mix, of Chicago, was introduced and delivered the address of Section One. He selected for his subject "Self-Cure by Advertised Medicine, or Does It Pay to Have a Doctor?"†

Adjourned.

THURSDAY, MAY 21, 1908.

THIRD GENERAL MEETING.

The Society was called to order in general session at 11 a. m. by the President. The Secretary read the report of the House of Delegates regarding the election of officers. (For full report see minutes of House of Delegates.) As no objection was raised, the report was adopted as read.

INSTALLATION OF OFFICERS.

The President appointed Drs. Carl E. Black and J. F. Percy to escort the President-elect to the platform.

Dr. Baum, the retiring President, in introducing his successor, said: "In closing this session, I wish to express my hearty appreciation of the great honor you have conferred by electing me your presiding officer during the past year. The position of President of the Illinois State Medical Society is the greatest honor which any medical man can hope to achieve in the State of Illinois. It is one but few men can hope to attain. You have elected to-day one of those members of the Society who for many years has been one of the great leaders in all progressive movements looking toward the betterment of the condition of the doctor and also toward the relief of human suffering.

* For text of paper see page 1. † For text of paper see page 10.

"I take great pleasure in introducing to you the new President, Dr. J. W. Pettit, of Ottawa."

Dr. Pettit was warmly received. He said: "Mr. President and Members of the Illinois State Medical Society:—I wish you to know that I appreciate the honor of the position of President of this Society which you so generously give me, but I want to assure you, in all earnestness, it does not come to me with any feeling of elation. I recognize, in accepting the position, the burdens and responsibilities that go with it, and I am sure I will lay down the duties at the end of the year with very much more elation than I accept them now. I say this in all earnestness, because I have the same high ideal of qualifications of President of a great organization like this as expressed by the retiring President, and I believe no man is worthy of filling the position who does not entertain these high ideals. I have no promises to make—absolutely none. I do not know what my policy will be, except this, that I will cooperate with every agency in the state for the upbuilding of this great Society, which has made such rapid strides in the last six or eight years.

"Again, I wish to say I thank you sincerely for this distinguished honor, and I accept the burdens and responsibilities of the position, assuring you that I shall strive to do everything I can to promote the interests of the profession of this state; that my private interests shall never supersede those of my public duties, if they shall come in conflict, as they undoubtedly will. I thank you." (Applause.)

On motion, the general meeting then adjourned *sine die*.

MINUTES OF THE HOUSE OF DELEGATES.

FIFTY-EIGHTH ANNUAL MEETING.

FIRST SESSION, PEORIA, TUESDAY, MAY 19, 1908.

The House of Delegates met in the Assembly Hall of the National Hotel, and was called to order at 8:50 a. m. by the President, Dr. William L. Baum, of Chicago. The Secretary called the roll and 25 delegates responded. On motion of Dr. Carl E. Black, the House then adjourned until 4 p. m.

SECOND SESSION.

Pursuant to adjournment, the House of Delegates met at 4 p. m., with the President in the Chair. The Secretary called the roll, to which 72 delegates responded. The President addressed the House as follows:

PRESIDENT W. L. BAUM'S ADDRESS TO HOUSE OF DELEGATES.

To the Members of the House of Delegates: Owing to an unfortunate illness last year, I was unable—and I consider it a misfortune—to be present when you elected me President of the Illinois State Medical Society. I esteem the honor very highly, and I wish to assure you of my great appreciation of your good will and your confidence in me. I have endeavored to continue to merit this good will and confidence, and it is my sincerest wish that whatever I may have done during my term of office has contributed, even though in small measure, to the success and continued welfare of the Society.

In reviewing the work of this Society during the past year, there comes to me

a feeling of regret that it was physically impossible for me to visit every County Society in this State. My visits have convinced me of the value of the county organizations, not only to the members themselves, but also to the communities in which these organizations are situated. They are the backbone and sinew of medical organization. From them must emanate all those suggestions, and ideas, the materialization of which has proved of so much value to the medical profession in the way of securing better and more effective legislation tending to conserve not only the interests of the doctor, but particularly those of the public. Therefore, it is to the interest of all that the county societies be given as much support as possible to stimulate their growth and to increase their efficiency.

At the suggestion of Dr. Percy in his communication to the House of Delegates last year, the Committee on Organization recommended to the Council the appointment of organizers to be placed under the jurisdiction of the Organization Committee of the American Medical Association, and these organizers were instructed to cooperate with the officers of the local societies in placing in membership eligible physicians. That this policy has been productive of much good is evidenced by the large number of applications received during the year, and the increase in membership. I do not believe that it is Utopian to feel that before long every medical practitioner who is eligible to membership will find it not only desirable, but necessary, to join his county organization.

It is not my desire to burden you or to take up your time with a detailed report of what has been accomplished by the Society during the past year. The various committees and the secretary will report on these matters, and I shall content myself with making a few suggestions which I hope you will find it possible to consider and act on.

I am fully convinced that it will be to the interest of the medical profession of the State if the county organizations will institute a series of public lectures such as are now being conducted by the Chicago Medical Society, on subjects pertaining to matters of public interest, and in which the medical profession alone is competent to give instruction. The public stands in need of such instruction, and is eager to receive it. The dangers and the prophylaxis of contagious diseases, public sanitation, the milk problem, the management and treatment of tuberculosis, and many other topics may be selected for discussion.

It might be well for the Society to submit to the county organizations a lecture schedule, the lectures to be delivered by physicians resident in the county and also non-residents. I would recommend the appointment of a committee to consider this subject, and present a plan for the consideration of the membership.

I also strongly recommend and urge that the House of Delegates consider the advisability of advocating a revision of those sections of the medical practice act dealing with the licensing power of the State Board of Health. During many years the duties and responsibilities of the State Board of Health have grown to such an extent that it hardly seems fair that busy practitioners living at widely separated points in the State should be held responsible for the acts of the Executive Officer of the Board. It must be apparent to all that a revision or an amending of these laws is necessary. As a first step in this direction, I would suggest the creation of a State Department of Public Health at whose head there should be placed a Commissioner of Health, who is to receive an adequate salary and whose duties should be similar to those of the Commissioner of Health in large cities. This official could be appointed by the Governor and would, therefore, be responsible to the State administration for all his acts. I have been assured by the President of the State Board of Health, Dr. George W. Webster, that such a change in the laws would meet with his hearty cooperation.

I should further recommend the creation of a State Board of Medical Exami-

ners whose duty it should be to examine all applicants for licensure to practice medicine, and midwifery. The Secretary of the Board should be paid an adequate salary and should devote all or a large portion of his time to this work. All the progressive States in the Union have a separate Board of Medical Examiners, apart from the Board of Health, because the functions of the Examining Board are of very great importance to the people of the State. Illinois should not be behind other States in this respect.

In the meantime, I would strongly urge on the members of this Society to lend their most hearty cooperation to the State Board of Health in the matter of recording births and deaths and in reporting the presence of contagious diseases, because these reports are of the greatest value, not only for statistical purposes, but for the conservation of the public health.

Legislation of the type suggested above can only be secured through the united action of the State and County organizations. Indeed, much depends on the County organization, because the members of Boards of Health and Boards of Examiners and the County Health Officers should be appointed by the Governor from a list of names submitted by the State and County organizations. Such a selection would insure perfect cooperation between the local health officer, the State Commissioner of Health, the medical profession, and the State authorities.

The recent death of our very highly esteemed friend and confrère, Dr. William P. Barlow, whose loss we lament and whose counsels we shall miss, disclosed the fact that there is no provision in the By-Laws of the Society empowering any one to fill vacancies on the council due to death, resignation or removal from the State. Action should be taken to remedy this defect at once by adding to Section 5 of Chapter VII, the words, or councilor, after the word treasurer.

This Society also owes much to its standing committees, whose work is responsible for much of the growth of the Society. The committees to which I refer are the Medico-Legal Committee, the Committee on Medical Organization, Committee on Medical Education, and the Committee on Legislation and Public Policy. These Committees will be heard from and I am sure you will be gratified with their reports.

In closing, I desire to express my gratitude to those who have cooperated with me during the year and who have supported me in my work.

At the request of Dr. Griffith the reading of the report of the Committee on Legislation was deferred until a later session.

The Committee on Public Policy, Dr. R. B. Preble, had no report to make.

Dr. E. M. Eckard, the chairman of the local Committee of Arrangements, made a partial report, and was given more time to complete his report.

The Secretary then read his report. On motion of Dr. Frank Billings, the report was ordered received and printed in the official JOURNAL.

REPORT OF SECRETARY.

To the House of Delegates of the Illinois State Medical Society:

Your secretary begs leave to present the following report: This House of Delegates at the last meeting at Rockford levied an assesment of \$2.50 per capita, of which amount \$1.50 was covered into the General Treasury of the Society, and \$1.00, according to Chapter 9, Section 6, was covered to the Medico-Legal Committee for its use.

Remittances were received from May 1, 1907, to and including May 2, 1908, from the following Component Societies, Subscriptions, and from the Committee of Arrangements at Rockford in the amounts to-wit:

Adams	\$ 326.00	Livingston	\$ 122.00
Alexander	17.50	Logan	55.50
Boone	21.75	Macon	190.00
Browne	27.50	Macoupin	53.25
Bureau	160.00	Madison	160.00
Calhoun	15.00	Marion	72.50
Carroll	57.75	Marshall	12.00
Cass	97.50	Mason	35.00
Champaign	206.50	Massac	27.50
Christian	107.50	McDonough	105.00
Clark	72.50	McLean	290.50
Clay	35.00	Menard	51.50
Clinton	37.75	Mercer	18.00
Coles	75.00	Monroe	41.50
Crawford	57.50	Morgan	268.00
Cumberland	17.50	Moultrie	10.00
De Kalb	81.25	Ogle	34.50
Dewitt	48.00	Peoria	7.50
Douglas	10.00	Perry	50.00
Edgar	60.00	Piatt	27.50
Edwards	7.50	Pike	95.00
Efingham	57.50	Pulaski	23.00
Fayette	24.40	Randolph	55.00
Ford-Iroquois	149.50	Richland	20.00
Franklin	30.00	Rock Island	195.00
Fulton	97.25	Sangamon	273.00
Gallatin	20.00	Scott	37.50
Grundy	35.50	Shelby	60.00
Hamilton	20.00	Stark	37.50
Hancock	134.00	St. Clair	22.50
Henderson	30.00	Stephenson	90.00
Henry	27.50	Tazewell	22.50
Jackson	37.50	Union	25.00
Jasper	37.50	Vermilion	152.50
Jefferson	35.00	Wabash	45.00
Jersey	42.50	Washington	55.25
Jo Daviess	31.00	Wayne	15.00
Fox River Valley Medical Society	77.00	White	22.50
Kankakee	79.00	Whiteside	59.75
Kendall	31.00	Will	202.00
Knox	235.00	Williamson	67.50
Lake	61.50	Winnebago	171.00
LaSalle	117.75	Woodford	55.00
Lawrence	42.50	Subscription	56.50
Lee	58.00	Committee of Arrangements	277.91
		Chicago Medical Society	4,538.38
Total			\$11,455.94
For Defense Fund			\$3,933.00

Again it gives me great pleasure to report that organized medicine has continued its wonderful stride in the State of Illinois during the past year. This is due, in my opinion, not so much to individual efforts made to have physicians come into the fold, but to an awakening in the physician of the spirit of organization, professional advancement and mutual protection.

Last year we thought we had reached the limit when our ranks were increased to the number of 500. This magnificent showing has been more than duplicated and when I state that the total number of new members accepted for the past year is 797, this unquestionably proves that the doctor of to-day desires good affiliation.

Acting on the recommendation of this House of Delegates a year ago, four organizers provided by the American Medical Association were placed in the State to solicit new members. These organizers have secured a total of 629 applications, of which number only 189 have been accepted. (Almost all of the

applications that have been received will in due time appear upon our roster, as since the date of this report many have already qualified in their affiliation. They are not numbered in this report.)

Acting upon the instructions of the Council I adopted the radical rule of dropping members whose names were not reported by the secretary as being in good standing. Before, however, a man was dropped, a circular letter was issued from this office to the individual advising him of the possibility of such action. I regret very much to be compelled to report that such action was taken in 311 instances. (Some of these have already been reinstated). The above includes also those who have moved permanently out of the State and could not continue their membership with us. In addition 38 names were removed by reason of death.

At the time of reorganization in 1903 it was customary for members to pay only when they happened to attend a meeting, and owing to the rapidity of the adoption by the Component Society of the new organization methods the financial part of the entire scheme received less consideration than any other. This showed great wisdom, because then the local society reported many names as members who were of the old order, i. e., they paid as they went. In addition to this the council, for missionary purposes, urged the placing of all names so reported on the mailing list. Now, when it came time to pay the per capita tax it unfortunately was for the year just past. This system manifestly has been wrong and it has been my earnest endeavor to have all of the component societies pay their per capita tax for the coming year and I am glad to say that I have succeeded in the greater part.

That all must do this will be apparent when I state that the new postoffice rule compels us to cease sending THE JOURNAL to any member who has not paid his tax.

As the secretary has been given complete charge of the mailing list, therefore it becomes necessary that he shall be supplied at the earliest possible moment with all data necessary to the keeping of such list in perfect order. Removals, changes of address, changes of affiliation, that is transfer of a member from one county to another, suspensions and deaths should be reported promptly. He should also be immediately supplied with the names of new officers for correction of the list published.

Your secretary has attended every meeting of the Council during the past year as well as the meeting of the Committee on Scientific Work in Chicago on January 20 last. This Committee determined the number of papers for the various sections and instructed me to reserve a part of the official program for the Component Secretary's Society.

I was also instructed to have printed one thousand copies of the official program for the use of the members at this meeting. Both requests were complied with. A copy of the official program was mailed to every State Society in the Union.

All of which is respectfully submitted.

EDMUND W. WEIS, *Secretary.*

On motion of Dr. Billings, as amended by Dr. C. S. Bacon, the President's address was referred to the Committee on Public Policy for a consideration of the recommendations contained therein, the committee to report later.

Dr. J. W. Smith presented the following resolution:

AMENDMENT TO BY-LAWS.

Add to Section 1, Chapter IX, a Committee on Secretaries' Conference.

Add new section as Section VIII, Chapter IX. The Committee on Secretaries' Conference shall consist of three members. They shall be

elected by the Secretaries' Conference. The term of service of each member of this committee shall be one year. This committee shall organize by electing a chairman, a vice-chairman, and secretary. It shall be the duty of this committee to arrange for annual conferences of the secretaries of the component county societies of the state.

Dr. Smith moved its adoption. Seconded.

Dr. W. O. Ensign moved to amend so much of the resolution as directs that the members of the committee shall be selected in the usual way, by stating that they shall be elected by the conference of secretaries. Seconded.

Dr. C. B. Brown moved that the whole matter be laid on the table. The motion was lost.

Dr. Ensign's amendment was carried, and then the original motion as amended was carried.

Here the Secretary read a letter from the Committee on Organization of Secretaries and Editors, which was referred to the Council.

The report of the Council was called for, but more time was asked, which was granted.

The reading of the report of the Committee on Medical Education was also deferred.

As the result of discussion as to what part the Society shall take at the coming annual meeting of the American Medical Association, Dr. Carl E. Black moved the appointment by the Chair of a committee of three to consider this matter of cooperation and report later. The Chair appointed on this committee Drs. Carl E. Black, A. E. Campbell and D. G. Smith. On motion of Dr. Carl E. Black, the House then adjourned until 12 o'clock noon Wednesday.

The House of Delegates reconvened at 12 o'clock Wednesday, May 20. Quorum present. It was moved and carried that the call of the roll be dispensed with. Minutes of the previous meeting read and approved. The Chairman called for the reports of the committees.

Dr. L. C. Taylor, Chairman of the Committee on Medical Legislation, presented a list of the Auxiliary Legislative Committee and a report of the work of the committee as follows:

STATE OF ILLINOIS
AUXILIARY LEGISLATIVE COMMITTEE.

Counties.	Names.	Postoffice.
Adams	L. H. A. Nickerson.....	Quincy
Alexander	James W. Dunn.....	Cairo
Bond		
Boone	Robt. W. McInnes.....	Belvidere
Brown	William Parker.....	Mt. Sterling
Bureau	G. A. Palmer.....	Princeton
Calhoun		
Carroll	H. S. Metcalf.....	Mt. Carroll
Cass	Geo. Bly and J. W. Huston.....	Virginia
Champaign	C. B. Johnson.....	Champaign
Christian	C. L. Carroll.....	Taylorville
Clark	R. H. Bradley.....	Marshall
Clay	George W. Steely.....	Louisville
Clinton	J. J. Morony.....	Breese

Counties.	Names.	Postoffice.
Coles		
Cook	J. V. Fowler, 412 Grand Ave.	Chicago
Crawford	I. L. Firebaugh	Robinson
Cumberland		
DeKalb	C. H. Mordoff	Genoa
DeWitt	Guy C. Dowdall	Clinton
Douglas	Walter C. Blain	Tuscola
DuPage	Fred H. Bates	Elmhurst
Edgar		
Edwards	W. E. Buxton	Samsville
Effingham	F. W. Goodell	Effingham
Fayette	A. L. T. Williams	Vandalia
Ford (See Iroquois)		
Franklin		
Fulton	P. H. Stoops	Ipava
Gallatin	J. W. Bowling	Shawneetown
Greene	Howard Burns	Carrollton
Grundy	Harry Ferguson	Morris
Hamilton	C. M. Lyon	McLeansboro
Hancock	S. M. Parr	Ft. Green
Hardin		
Henderson	I. F. Harter	Stronghurst
Henry	Charles W. Hall	Kewanee
Iroquois-Ford	S. S. Fuller	Paxton
Jackson	C. O. Molz	Murphysboro
Jasper	H. S. Hinman and J. P. Prestley	Newton
Jefferson	Walter Watson	Mt. Vernon
Jersey	A. K. Van Horn	Jerseyville
JoDaviess	T. J. Stafford	Stockton
Johnson	Hartley W. Walker	Grantsburg
Kane	F. H. Jenks	Elgin
Kankakee	C. F. Smith	Kankakee
Kendall	R. A. McClelland	Yorkville
Knox	Chas. B. Horrell	Galesburg
Lake		
LaSalle	E. W. Weis	Ottawa
Lawrence		
Lee	C. C. Hunt	Dixon
Livingston	A. B. Middleton	Pontiac
"	H. M. Otis	Fairbury
"	J. G. Barnheizer	Forest
"		
Logan	J. L. Lowrie	Lincoln
Macon	Herbert S. Jones	Decatur
Macoupin	J. S. Collins	Carlinville
Madison	J. N. Shaff	Alton
Marion	W. T. Richardson	Centralia
Marshall	S. O. Hendricks	Henry
Mason	E. E. Rohrbaugh	San Jose
Massac	E. C. Trovillion	Metropolis
McDonough		
McHenry	E. Mammen	Bloomington
McLean	E. V. Anderson	Woodstock
Menard	A. L. Brittin	Athens
Mercer	A. N. Mackey	Aledo
Monroe	Lewis Adelsberger	Waterloo
Montgomery		
Morgan	C. E. Black	Jacksonville
Moultrie		
Ogle	Leslie A. Beard	Polo
Peoria	Sumner M. Miller	Peoria
Perry	F. P. Gillis	Duquoin
Piatt		

Counties.	Names.	Postoffice.
Pike	L. J. Harvey	Griggsville
Pope	Henry W. McCoy	Golconda
Pulaski	M. L. Winstead	Wetaug
Putnam	G. A. McCormick	Hennepin
Randolph	H. C. Adderly	Chester
Richland	H. T. Watkins	Olney
Rock Island	J. P. Comgys	Rock Island
Saline	J. R. Baker	Harrisburg
Sangamon	G. N. Kreider	Springfield
Schuyler	A. W. Ball	Rushville
Scott	James Miner	Winchester
Shelby	W. T. Eddy	Shelbyville
Stark	E. B. Packer	Toulon
St. Clair	J. W. Twitchell	Belleville
Stephenson	E. H. Best	Freeport
Tazewell	J. M. Cody	Tremont
Union	J. I. Hale	Anna
Vermilion	E. E. Clark	Danville
Wabash	J. B. Maxwell	Mt. Carmel
Warren	A. G. Patton	Monmouth
Washington	J. J. Troutt	Nashville
Wayne	B. E. Garrison	Wayne City
White	I. A. Foster	New Haven
Whiteside		
Will	Marion K. Bowles	Joliet
Williamson	A. M. Edwards	Marion
Winnebago	Wm. R. Fringer	Rockford
Woodford	John Frank Page	Eureka

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

Since the report of your committee on medical legislation one year ago at the Rockford meeting, a few measures have been passed by the legislature which are of interest to the medical profession. The optometry bill was vetoed by the Governor after our last report was made and on the closing days of the session.

After conference between the secretary of the State Board of Health and the chairman of the legislative committee representing the three schools of medical practice in the State of Illinois, a bill amending the medical practice act was introduced empowering the State Board of Health to "Establish a standard of preliminary education deemed requisite to admission to a medical college in 'good standing,' and to require satisfactory proof of the enforcement of this standard by medical colleges." Under this law the board is empowered to determine the standard of all literary or scientific colleges or schools from which such entrance certificates are presented and the Board of Health may at its discretion, accept as the equivalent of one or more of the sessions or terms prescribed in its requirements governing medical colleges in "good standing," attendance in a literary or scientific college in "good standing" as evidenced by a degree from said institution, providing that the standards of said literary or scientific college are fully equal to those of the State University of Illinois. This law does not confer the power of the entrance examinations upon medical colleges themselves, but accepts examinations made by the state superintendent of public instruction or equivalent state officer in lieu of high school certificates referred to above.

House bill No. 897, known as the "Anti-cocain bill," was passed during the last session of the legislature. It forbids the sale of cocain, alpha or beta cueain, etc., excepting upon prescription of a qualified physician, which prescription cannot be legally refilled nor can they be prescribed for or sold to habitual users under penalty of a heavy fine and revocation of the certificate of any physician or druggist violating the provisions of this act.

A bill entitled, "An Act to enable cities and villages to establish and maintain public tuberculosis sanitariums," passed both houses of the legislature and

was signed by the Governor on March 7, 1908. This measure provides for the establishment of sanitariums upon a majority vote at any regular election, which are to be annually built and maintained by special tax not to exceed four mills upon the dollar levied for that purpose and conducted by a board appointed by the city authorities.

The bill to repeal the section of the birth and death act requiring payment to physicians for these reports was defeated through the efforts of the secretary of the State Board of Health and the county medical societies which forwarded to their representatives resolutions protesting against repeal of this act.

As you are well aware, an important bill is now pending in the legislature providing radical alterations in the management of our state charitable institutions. This is House bill No. 948, and known as the "Shurtleff bill," which was introduced in the lower house and passed by one vote in excess of the constitutional majority. Owing to adjournment of the senate, this measure has as yet not been received by that body and its fate is very problematical. It is the opinion of your committee that an act of this importance should receive the most careful consideration from every standpoint and that the judgment of the State Board of Charities, the members of which have given many years of careful, unprejudiced and gratuitous services to the study of these questions, should be considered in regard to the best means for correcting certain acknowledged defects which exist under the present law. This bill provides for the abolishment of the State Board of Charities and substituting in its place a State Commission of Control appointed by the Governor and with power to appoint superintendents of public charitable institutions and their subordinates under civil service regulations.

In a special report to Governor Deneen by the State Board of Charities made May 1, 1908, an exhaustive review is made of the legislation in other states in regard to the management of charitable institutions. Some have Boards of Charities such as exists in Illinois. Others have Boards of Control. New York has a fiscal supervisor, a commission in lunacy which is a Board of Control over the insane hospitals, and also a superintendent of the state prisons.

It is not within the scope of the duties of this committee to discuss the merits of these different systems and we refer you to the summing up of the report of the State Board of Charities in the following words: "We believe that by combining the best features of the Board of Charities and local trustees with the best features of the Board of Control system, Illinois will secure a broad, elastic and satisfactory arrangement, *provided always that honest and efficient officials are at the helm.*"

L. C. TAYLOR.

J. V. FOWLER.

M. S. MARCY.

It was moved to adopt the same, with the thanks of the House of Delegates to the committee. Seconded and carried.

Here M. L. Harris presented the following resolution and moved its adoption:

WHEREAS, His Excellency, the Governor, in appointing the present Board of Charities, placed upon the members thereof, no political restraints whatsoever, and

WHEREAS, The Board has labored earnestly and unselfishly to elevate and improve the standard of our State Charitable Institutions, and the care and attention given the unfortunate inmates thereof, and

WHEREAS, The Governor has encouraged this work of the Board and facilitated it whenever possible, therefore be it

Resolved, That the Illinois State Medical Society by its House of Delegates, hereby most heartily approves the good work done by the Board of Charities and commends the Governor for the earnest support which he has given the Board in this work.

The resolution was heartily seconded by Dr. Carl E. Black and others.

Drs. Pettit and Frank P. Norbury made strongly commendatory remarks. It was carried by a rising unanimous vote.

Chairman Harold N. Moyer, of the Medicolegal Committee, presented a résumé of the work done by this committee for the year. He stated that a total of thirty-five cases were under consideration and disposed of. In addition he made an exhaustive oral report. Appended is the financial statement of the committee. On motion the report was adopted.

TREASURER'S REPORT.

Oct. 1, 1906, to May 19, 1908.

RECEIPTS.

Oct. 1, 1906, from Dr. Weis.....	\$ 100.00
Oct. 1, 1906, from member.....	.50
Oct. 1, 1906, from member.....	.50
Jan. 31, 1907, from Homeopathic M. S.....	70.00
April 1, 1907, from Homeopathic M. S.....	11.00
July 8, 1907, from member.....	5.00
Oct. 2, 1907, from Treasurer.....	1,500.00
Dec. 6, 1907, from Treasurer.....	1,000.00
	<hr/>
	\$2,687.00

DISBURSEMENTS.

Attorneys' fees	\$1,983.73
Stationery and printing.....	12.25
Stenographer	380.00
Postage	13.76
Books	10.00
Sundry	9.55
Exchange .....	.25
Office supplies, file, etc.....	53.19
	<hr/>
	\$2,462.73
Balance	<hr/>
	\$224.27

ITEMIZED STATEMENT OF DISBURSEMENTS.

Oct. 1, 1906, to May 19, 1908.

POSTAGE.		STENOGRAPHER.	
Oct. 1, 1906.....	\$ 1.00	Nov. 28, 1906.....	\$ 20.00
Oct. 10, 1906.....	2.00	Dec. 21, 1906.....	20.00
Oct. 13, 1906.....	5.76	Jan. 21, 1907.....	20.00
June 19, 1907.....	1.00	Feb. 27, 1907.....	20.00
Oct. 5, 1907.....	2.00	March 16, 1907.....	20.00
Feb. 18, 1908.....	2.00	April 15, 1907.....	20.00
	<hr/>	May 24, 1907.....	20.00
Total	\$13.76	June 24, 1907.....	20.00
		July 19, 1907.....	20.00
		Aug. 21, 1907.....	20.00
		Sept. 18, 1907.....	20.00
		Oct. 14, 1907.....	20.00
		Nov. 12, 1907.....	20.00
		Dec. 13, 1907.....	20.00
		Jan. 21, 1908.....	20.00
		Feb. 18, 1908.....	20.00
		March 23, 1908.....	20.00
		April 16, 1908.....	20.00
		May 19, 1908.....	20.00
			<hr/>
		Total	\$380.00

STATIONERY AND PRINTING.

Oct. 13, 1906.....	\$ 8.00
June 14, 1907.....	2.25
Oct. 22, 1907.....	2.00
	<hr/>
Total	\$12.25

BOOKS.

Oct. 13, 1906.....	\$ 8.00
April 6, 1907.....	2.00
	<hr/>
Total	\$10.00

TREASURER'S REPORT—Continued.

ATTORNEY'S FEES.

Nov. 28, 1906.....	\$ 10.00
Oct. 5, 1907.....	197.70
Dec. 3, 1907.....	50.00
Dec. 6, 1907.....	1,626.63
Dec. 13, 1907.....	100.00

Total\$1,983.73

SUNDRY EXPENSES.

April 6, 1906.....	\$0.80
April 6, 1906.....	3.00
Aug. 31, 1907.....	.75
March 10, 1908.....	5.00

EXCHANGE.

Oct. 12, 1906.....	\$0.25
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OFFICE SUPPLIES, FILE, ETC.

Oct. 13, 1906.....	\$ 0.60
Oct. 13, 1906.....	0.39
Dec. 6, 1906.....	1.20
April 6, 1907.....	1.20
June 7, 1907.....	35.80
June 10, 1907.....	12.85
July 1, 1907.....	1.15

Total\$63.19

H. N. MOYER, *Treasurer.*

Adjourned to meet at 5 p. m.

House met pursuant to adjournment at 5 p. m. Quorum present. Minutes of the previous meeting read and approved. Committee on Medical Education, by Frank P. Norbury, its chairman, made the following report, which upon motion was accepted and ordered recorded:

To the House of Delegates, Illinois State Medical Society:

Your Committee on Medical Education would respectfully report that aside from the attendance upon the Fourth Annual Conference of the Council of Medical Education of the American Medical Association held in Chicago, April 13, 1908, no formal work has been attempted. Your Committee wishes to call to the attention of the Illinois State Medical Society, the excellent, thorough and constructive work being done by the Council on Medical Education of the American Medical Association, not only for the purpose of endorsing this most important and essentially constructive movement, but also for the purpose of making it a matter of individual concern to the members of this Society that they may, in their contact with prospective medical students, interest them in fulfilling the requirements being urged by the Council; that in so doing they will be volunteers in this world movement for higher professional education.

This is a day when the subject of education is paramount; when qualifications, educational and personal, are essential to meet the demands which the physician will be called upon to meet, and he who is to bear the burden of the professional duties, as well as he is to be forerunner of things that are to be in research work must submit himself to preparation, not only that he must discharge the duties incumbent upon him, but that he may elevate the level of his profession in keeping with other learned professions which are showing such marvelous growth.

It is the belief of your Committee that each member of this Society is a potential element for good in this educational progress by encouraging the youth who applies to them for advice and suggestion regarding medical education, to first broaden his training by thorough preliminary education, which gives not only the foundation for progress in medicine but adds culture which we believe is the solution of many of the problems of to-day which confront the practitioners, not only as individuals, but collectively in Society work. A liberally educated and cultivated practitioner of medicine is not only better fitted to meet the professional problems, but as a citizen, in his advice and cooperation, can and will promote civic culture; create opportunities for better citizenship and show aptitude for constructive development of the affairs of the world.

Your Committee is pleased to note the adoption of higher preliminary requirements by the State Board of Health of Illinois and urges further adoption from time to time to meet the highest possible demands for preliminary educational requirements.

Your Committee would be pleased to have this Society endorse the work of the Council on Medical Education of the A. M. A. because it is constructive; because it is practical; because it is in line with the world movement along educational lines which seeks first and last to be practical and which seeks to develop the man as an individual as well as the profession which he represents.

A liberal education is the foundation upon which true success rests and even to the physician to whom the love of knowledge is not a vital question, it is yet an essential one as a means to the rank which he is to occupy, a technical training in the science of medicine as now taught demands a liberal training, at least in biology and in modern languages and it will be the exceptional student who will qualify for entrance who at least has not had such training.

Just here, let us say that the full academic training should be urged, for in after years, the student who has only qualified sufficiently to meet the demands for entrance, is apt, with the growth of all educational progress, to meet the time when his academic degree may mean more to him than he had supposed.

We recognize that it is the average student the Council is considering and for whom it is urging the requirements. We are considering not only the average but the exceptional student who needs advice and suggestions also. We plead for more of the more matured, cultivated, better informed physicians who are to be not only trained, practical physicians, but good, progressive citizens as well. Illinois should stand for such a demand and urge her medical schools to meet it and let it be known to all other States, we stand for higher medical education; this will mean that quality of men will be raised and medicine, thereby, as a profession, elevated in all that it stands for.

FRANK PARSONS NORBURY, Chairman.

J. F. PERCY.

C. L. MIX.

Chairman Carl E. Black of the Council made the following report of the work done by the Council:

PEORIA, ILL., MAY 20, 1908.

To the House of Delegates, Illinois State Medical Society:

Gentlemen—In accordance with the Constitution and By-Laws of the Illinois State Medical Society it becomes my official duty as Chairman of the Council to report the work done during the interim since our last annual meeting.

The Council has had two meetings during the year, one at Chicago, Oct. 3, 1907, and one at Peoria, Jan. 9, 1908.

FIELD ORGANIZATION.

At the October meeting the Council entered into an arrangement with the American Medical Association by which an organizer was placed in every district in the State and a thorough canvass of every physician not belonging to a medical society was made in each county and a report received on each. By this means a large number of new members were added to the various county societies. Besides adding new members we also received a report of the eligible and non-eligible members of the profession. The work was done in conjunction with the American Medical Association by organizers furnished by the National Society and we present to you the following report from the Secretary of the American Medical Association, showing what was accomplished by this work:

"In accordance with the arrangement made with the Council of the Illinois Medical Society, co-operative organization work was begun November 1, corrected proof of the various counties being sent on that date to the secretaries of the county societies for all counties except Cook and DuPage. As fast as this proof was returned with corrections and with the names of eligible non-members marked thereon, lists were made up for the organizers to use in canvassing. Considerable difficulty was experienced in securing prompt cooperation from some of the county secretaries, necessitating four and five letters in some cases to secure the desired information. In spite of all efforts twenty-five secretaries failed to correct the lists sent them or even to acknowledge receipt of any letters.

The counties from which no replies were received are as follows: Alexander, Boone, Champaign, Gallatin, Jefferson, Lawrence, McDonough, Menard, Montgomery, Ogle, Pope, Pulaski, Putnam, Saline, Warren, Washington, Wayne, Whiteside, White, Williamson and Winnebago. In case the county secretary failed to respond the organizer was, of course, compelled to carry on the work as best he could.

"From the reports received from the secretaries and from the estimates submitted by the canvassers it was found that there were on November 1 about 1,800 physicians in the State of Illinois who were eligible to membership, 575 being in Cook County, leaving 1,200 for the rest of the state.

"The entire state has been canvassed, 6 men being engaged in the work for a total of 81 weeks. During this time 677 applications for membership in county societies have been taken; of these, 275 were for the Chicago Medical Society and 402 were for the various county societies. A list, giving the name and the address of each applicant is submitted herewith.

"I also submit herewith a list, arranged by counties and districts, of the eligible physicians reported by county secretaries who are not yet members of their county society. This eligible list can be used as a basis for further organization work or for sending out sample copies of the ILLINOIS MEDICAL JOURNAL, etc. This list shows that there are 810 physicians in Illinois outside of Cook County and 300 in Cook County who are eligible to membership, making a total at present of 1,110 eligible non-members."

Appended to this report was a list of the applications taken in each county and also a list of physicians who are eligible to membership in each Councilor District.

THE JOURNAL.

THE JOURNAL has appeared regularly every month during the year and has been more nearly on time in its date of publication. We feel that the class of matter published and the manner in which it has appeared have been far more satisfactory than ever before. The report of the editor will give the details of the work of publication and the report of the treasurer will show the financial condition of the publications of the society.

During the year the publication committee has talked with various members of the Society and especially with Dr. Simmons, Editor of the *Journal* of the American Medical Association, regarding the advisability of converting the ILLINOIS MEDICAL JOURNAL into a weekly journal. After securing data from the various sources, the chairman addressed the following letter to members of the publication committee:

"After talking with Dr. Simmons and Dr. Kreider it seems to me that the time is ripe for converting the ILLINOIS MEDICAL JOURNAL into a weekly instead of a monthly. And it seems to me after canvassing the resources of the society with Dr. Baxter regarding the advertising, that the State Society is now strong enough and large enough to undertake a weekly Journal. The fact is that state news and medical society news is old by the time it reaches our readers. More than one-half of such news has already been read elsewhere by those who are abreast of the times. A list could be published each week of all the society meetings to be held in the State. I know in my own experience it has often happened that if I had known of a meeting in Chicago or Springfield or Peoria I would have attended it and I think the same must be true of others. Dr. Simmons has furnished an estimate, as follows:

"We estimate that 5,000 copies of a 40-page issue without cover, size of page 8x11, printed, bound and delivered at the freight depot in Chicago will cost approximately \$175 per issue and each additional 8-page form approximately \$30."

Dr. Simmons says:

"Candidly I think a weekly journal would be practical and advantageous in many ways."

"I understand from Dr. Simmons that the deduction of each 8-page form (that is we might on certain weeks not care to print more than 24 or 32 pages) would reduce the cost approximately \$30 for each 8-page form. Such a journal would enable us to give the physicians of Illinois the first news regarding everything medical occurring in this state instead of giving them two-thirds of it

when it is from one to three weeks old. It would also enable the Chicago Medical Society to dispense with its weekly bulletin which would be a considerable service to them and would give them in addition a wide distribution of their notices of meetings and enable a good many more in the country to take advantage of these meetings.

"Please think this matter over and let me hear from you regarding it. If you think necessary the committee could have a meeting in Chicago and go over the matter more in detail."

The committee has talked the matter over but has taken no action, preferring to present it to the Council as a whole without special action from the committee and while the Council has no recommendation to make to-day it is presented because it will undoubtedly become necessary in the near future.

REPORT OF THE EDITOR, G. N. KREIDER.

THE JOURNAL has, during the past year, continued to reflect the growth and the influence of the State Medical Society, which has been so marked since its inception. Each edition has contained about 130 pages, making nearly 1,600 pages for the year. At the beginning of the year 4,700 journals were printed monthly. Of the May, 1908, edition, 5,300 copies were printed, 100 going to the State Board of Public Charities by special order. Of these but 35 copies remain, so that it appears necessary to publish not less than 5,300 copies regularly for the coming year.

An increasing number of subscribers are receiving THE JOURNAL and if any way of soliciting subscription could be devised it is probable that the list of subscribers, non-members of the State Society, could be made a very considerable one, which would add materially to the income and influence of the State Society.

Notwithstanding the strict supervision of the character of advertisements during the past year it is a satisfaction to state that there has been no diminution in the receipts from this source. The large increase in the amount of material offered for publication and the desirability of reaching the profession promptly and frequently had led to the suggestion of printing a weekly instead of a monthly publication. There are many reasons why this should be done and at least the Council should have this in mind and should the necessities become more urgent be ready to begin the weekly publication in the near future.

FINANCIAL STATEMENT.

The following is a summary of the financial condition of the Society at the close of the last fiscal year. The report of Treasurer Brown showed the following from June 1 to Dec. 31, 1907:

RECEIPTS.	DISBURSEMENTS.
Balance on Hand.....\$1,777.39	Journal bills.....\$4,375.50
From advertisements..... 3,556.08	Honorariums..... 1,000.00
From E. W. Weis, secretary... 7,200.81	Judicial Council expenses.... 410.00
	Expense..... 21.00
	E. W. Weis, ex. sec. of..... 377.19
	Dr. F. R. Green..... 511.98
	Discounts..... 35.00
	Printing and stationery..... 120.00
	E. J. Brown, exp. treas., of.... 41.40
	G. N. Kreider, editor..... 860.00
	Geo. E. Baxter, exp. asst. editor. 1,099.27
	Wm. Whitford, reporting meet- ings..... 429.80
	Balance in bank..... 3,291.28
\$12,534.28	\$12,534.28

DEATH OF DR. BARLOW.

The Council lost during the year one of its most useful and esteemed members by the death of Dr. Columbus Barlow of Robinson, Ill. Too much could not be said of the valuable services of Dr. Barlow to this society and to the profession of the districts which he represented so ably as well as his high personal character as a physician and a citizen. Suitable resolutions have already appeared in THE JOURNAL.

CHANGE IN BY-LAWS.

The death of Dr. Barlow confronted the Council with a serious defect in the By-Laws. There is no provision for temporarily filling a vacancy occurring in the Council during the recess of the House of Delegates. In this instance the Council took the liberty of filling the vacancy by appointing Dr. W. K. Newcomb, former councilor from that district, to take care of the work of the District until this meeting in order that organizations should not suffer. To guard against future similar embarrassments the Council would suggest that the last sentence of Chapter VIII, Section 5, be amended to read as follows: "In the event of a vacancy in the office of the Secretary, or Treasurer, or in the Board of Councilors, the Council shall fill the vacancy until the next annual election."

PROPERTY OF THE SOCIETY.

The following is a statement of the property of the Society in the hands of various officers:

Office of Editor:—		
1 typewriter, desk and chair.....	\$10.00	
1 card index case.....	20.00	
1 letter scale.....	.50	
Old copies of issues of JOURNAL.....	5.00	
	—————	\$35.50
Office of Assistant Editor:		
1 typewriter (L. C. Smith & Bros.).....	\$50.00	
1 set of shelves.....	6.00	
Stationery	5.00	
Old copies of issues of JOURNAL.....	5.00	
	—————	\$66.00
Office of Treasurer:—		
Only record books of no sale value.		
Office of Secretary:—		
1 typewriter	\$50.00	
2 cabinets and index.....	200.00	
1 seal	2.50	
Record books and of only historic value.....		
	—————	\$252.50
Total		\$354.00

APPOINTMENT OF DEPUTY COUNCILOR.

At the meeting yesterday at the request of Councilor Mitchell of the Ninth District, a Deputy Councilor, Dr. Thomas M. Aderhold, Zeigler, Ill., was appointed to assist the Councilor during the coming year. It is unreasonable to expect a Councilor to visit 23 counties each year.

ENTERTAINMENT FOR AMERICAN MEDICAL ASSOCIATION.

The Council has adopted the following resolution by unanimous vote:
Resolved, That the Illinois State Medical Society appropriate not to exceed \$1,000 for the entertainment of its members and guests, members of the American Medical Association at the meeting to be held in Chicago.
 Carried unanimously.

Respectfully submitted for the Council by
 CARL E. BLACK, *Chairman*.

Dr. Carl E. Black, as chairman of the special committee on the question of entertaining the members of the Illinois State Medical Society and guests, members of the American Medical Association, presented the following: The committee presented the matter to the Council, which voted that an amount not to exceed \$1,000 be used, and your committee recommends that a committee of three be appointed by the

chairman, preferably from Chicago, of which President Baum shall be a member, to establish headquarters, obtain badges for each Illinois state member and procure a register, and if means and time will allow to provide a luncheon for the members of the American Medical Association with the Illinois State Medical Society as host. It is moved that the two above reports be adopted. Carried.

The president now called for the report of the Committee on Public Policy, to which had been referred the recommendations in the president's address. This committee by Pettit reported as follows: The committee believes that the recommendations of President Baum that lectures on medical topics be given throughout the state should be complied with. That the recommendation of the creation of a separate Board of Examiners and the creation of a State Health Commissioner by law should be urged and if possible have a law enacted embracing this feature by the State of Illinois. It is moved and carried that the report of this committee be adopted.

Adjourned to meet at 9:30 a. m. to-morrow morning.

Reconvened at 9:30 a. m. May 21. There being a quorum present, roll call was dispensed with. The minutes of the previous meeting were read and approved.

The first order of business being the election of officers, the following were declared elected:

President.....	Dr. J. W. Pettit, Ottawa
First Vice-President.....	Dr. J. L. Wiggins, East St. Louis
Second Vice-President.....	Dr. E. M. Eckard, Peoria
Treasurer.....	Dr. E. J. Brown, Decatur
Secretary.....	Dr. E. W. Weis, Ottawa
Councilor, First District.....	Dr. J. H. Stealy, Freeport
Councilor, Second District.....	Dr. C. C. Hunt, Dixon
Councilor, Eighth District...	Dr. W. K. Newcomb, Champaign

Delegates to American Medical Association—Dr. E. W. Weis, Ottawa; Dr. R. T. Gillmore, Chicago; Dr. J. F. Percy, Galesburg; Dr. L. H. A. Nickerson, Quincy.

Alternates—Dr. W. B. Helm, Rockford; Dr. D. G. Smith, Elizabeth; Dr. William Parsons, Chicago; Dr. W. D. Robbins, Chicago Heights; Dr. T. H. Renn, Chicago; Dr. T. J. Pitner, Chicago; Dr. L. C. Taylor, Springfield.

Committee on Public Policy—Dr. Robert B. Preble, Chicago; Dr. Carl E. Black, Jacksonville; Dr. Wm. L. Baum, Chicago.

Committee on Medical Legislation—Dr. L. C. Taylor, Springfield; Dr. M. S. Marey, Peoria; Dr. J. V. Fowler, Chicago.

Committee on Medical Education—Dr. J. F. Percy, Galesburg.

Place of Meeting—Quincy, May 18, 19 and 20, 1909.

Section One—Dr. Jos. L. Miller, Chicago, Chairman; Dr. C. A. Wells, Quincy, Secretary.

Section Two—Dr. Daniel N. Eisendrath, Chicago, Chairman; Dr. H. N. Rafferty, Robinson, Secretary.

Secretarys Conference—Dr. C. Hubart Lovewell, Chicago, Chairman. Dr. H. N. Rafferty, Robinson, Vice-Chairman; Dr. D. G. Smith, Elizabeth, Secretary.

The present Medicolegal Committee as published in *THE JOURNAL* was re-elected, with Dr. Harold N. Moyer as chairman. Those counties not now represented shall appoint a member on this committee.

It is moved by Pettit, seconded and carried that the per capita tax for the ensuing year shall be \$2.50.

The report of the Committee on Arrangements by E. M. Eckard, chairman, was presented, and on motion received and a final settlement ordered to be made to the Council.

Dr. Frank P. Norbury presented the following resolution:

WHEREAS, The work pertaining to Medical Education so ably pursued by the Council on Medical Education of the A. M. A., is essentially constructive and destined to upbuild the welfare of the profession of Medicine, and

WHEREAS, This work should receive the support of every State in the Union and of the profession as individuals; therefore be it

Resolved, That the Illinois State Medical Society in Convention assembled endorse this work of the Committee of the A. M. A., and urgently recommend that the Component County Societies consider at one meeting of the year the subject of Medical Education in order to present the claims of higher Medical Education.

Carried.

It was moved by Dr. Black that Chapter 8, Section 5, page 27, line 11 be amended as follows: The word "or" to be erased and after the word "treasurer," same line, the words "The Board of Council" be added. Carried.

Dr. George N. Kreider now presented the following resolutions:

Resolved, That the Illinois State Medical Society return hearty thanks to the medical profession and the citizens of Peoria for the excellent arrangements made for the fifty-eighth annual meeting of this society and for the delightful entertainment provided for the members and ladies accompanying them.

Resolved, That our thanks be returned to the press of the city for their excellent report of the meetings and for the courteous expressions concerning the medical profession contained therein.

Which upon motion was enthusiastically adopted.

Dr. George Edwin Baxter moved that the chairman of the Committee on Arrangements be instructed to furnish a copy of the exhibits at the next annual meeting to the chairman of the Council. Carried.

It was now moved and carried that the House of Delegates return hearty thanks to President Baum for his kindly and courteous treatment as a presiding officer. Adjourned sine die. E. W. WEIS, *Secretary*.

MINUTES OF SECTION ONE.

FIRST SESSION, MAY 19, 1908.

Chairman, Dr. S. E. Munson, Springfield.

Secretary, Dr. George Edwin Baxter, Chicago.

Section was called to order by the Chairman.

Dr. S. T. Robinson, of Edwardsville, read a paper entitled "Psychology of Hysteria," which was discussed by Drs. Mettler and Billings.

Dr. William J. Butler, of Chicago, read a paper on "Serum Diagnosis of Syphilis."

Dr. T. J. Pitner, of Jacksonville, read a paper entitled "Arteriosclerosis."

This paper was discussed by Drs. Engelbretson, Butler, Preble, Miller and Wescott.

Dr. James B. Herrick, of Chicago, followed with a paper on "Some Points Concerning the Treatment of Diabetes, with Special Reference to the Oatmeal Diet."

The paper was discussed by Drs. Billings, Baxter and, in closing, by the essayist.

Dr. Josephine Milligan, of Jacksonville, read a paper entitled "The Practical Application of Food Values in Every Day Practice in the Nutrition of Children from the Age of Nine Months to Puberty."

Dr. Joseph L. Miller, of Chicago, read a paper entitled "Some Principles of Treatment of Cardiovascular Conditions."

This paper was discussed by Drs. Herrick, Billings, Munson, Page, and, in closing, by the essayist.

On motion the Section adjourned until 2 p. m.

SECOND SESSION.

Section called to order at 2:20 p. m. by the Chairman.

Dr. Thomas W. Bath, of Bloomington, read a paper entitled "Study of Diagnosis and Pathology Should Not Lessen Our Confidence in the Intelligent Use of Drugs."

Dr. M. Milton Portis, of Chicago, read a paper entitled "The Control of Hyperacidity by Diet and Drugs."

The paper was discussed by Drs. Miller, Hultgen, Billings, Elliott, Hall, and the discussion closed by the author of the paper.

Dr. Winfield S. Hall, of Chicago, read a paper on "Energy Value of Foods," which was discussed by Drs. McNeill, Allen, Page, Aderhold, Carter, Bath, and, in closing, by the essayist.

Dr. Robert H. Babcock, of Chicago, read a paper entitled "Baths and Exercise in the Treatment of Heart Disease."

The paper was discussed by Dr. Elliott and the discussion closed by the essayist.

Dr. Frederick Tice, of Chicago, read a paper on "Dietetic Treatment of Pulmonary Tuberculosis," which was discussed by Drs. Butterfield, Gray and, in closing, by the author of the paper.

Dr. George S. Edmondson, of Clinton, presented a paper entitled "Some Uses of the X-Ray in the Hands of the Practitioner."

This paper was discussed by Drs. Beck, Munson and, in closing, by the author of the paper.

On motion of Dr. J. W. Pettit, seconded by Dr. E. J. Brown, the following papers in the symposium were read by title and referred to the Publication Committee:

(a) "How Shall We Apply the New Sanitarium Law? The Law; Its Possibilities; the Needs It Supplies," by Dr. Henry B. Favill, of Chicago.

(b) "The Resources Available," by Dr. E. J. Brown, of Decatur.

(c) "The Dispensary; General Scheme and Application Under the Law," by Dr. Ethan A. Gray, of Chicago.

(d) "The Sanitarium; Its Function and Value," by Dr. J. W. Pettit, of Ottawa.

Dr. J. F. Hultgen, of Chicago, read a paper entitled "Five Hundred Consecutive Cases of Alcoholism; a Clinical Statistical Comparative Report," which was discussed by Drs. Walton, Munson, and the discussion closed by the essayist.

On motion of Dr. Ethan A. Gray, the Chair appointed the following as a Committee on Nominations to nominate Section officers for the ensuing year: Drs. T. J. Pitner, Chairman; Ethan A. Gray and Aderhold.

The Chairman, Dr. Munson, said that, inasmuch as the work of this Section had been completed, he wished to thank the members for the uniform courtesy they had extended to him in presiding over the deliberations of the Section. He hoped all had been benefited by the program, the preparation of which was largely due the efficient Secretary, Dr. Baxter.

On motion, the Section then adjourned *sine die*.

MINUTES OF SECTION TWO.

Chairman, Dr. E. Wyllys Andrews, Chicago.

Secretary, Dr. W. B. Helm, Rockford.

FIRST SESSION, WEDNESDAY, MAY 20, 1908.

Section called to order at 9 a. m. by the Chairman.

Dr. J. W. McDonald, of Aurora, read a paper on "Traumatism of the Skull."

Dr. George De Tarnowsky, of Chicago, followed with a paper entitled "Fractures of the Base of the Cranium, with Diastasis of the Left Temporo-Parietal Articulation, Ending in Recovery."

These two papers were discussed together by Drs. Eisendrath, Sullivan, Stremmel, Fairbrother, and the discussion closed by the essayists.

Dr. John Young Brown, of St. Louis, Mo., delivered the address of Section Two, selecting for his subject "The Importance of Early Diagnosis and Prompt Surgical Treatment of Injuries of the Diaphragm."* On motion of Dr. Arthur D. Bevan, seconded by several members, a rising vote of thanks was extended to Dr. Brown for his very interesting and instructive address.

Dr. Julius Grinker, of Chicago, presented a paper on "Diagnostics in Spinal Cord Surgery."

* For text of paper see page 22.

Dr. R. C. Bourland, of Rockford, followed with a paper entitled "Surgery of the Spinal Cord, with Special Reference to Traumatic Lesions of the Cord."

These two papers were discussed jointly by Drs. Graham, Bevan, Mammen, D'Orsay Hecht, Harris, Bouffleur, Plummer and, in closing, by the authors of the papers.

Dr. F. D. Hollenbeek, of Chicago, read a paper on "Placenta Previa."

This paper was discussed by Drs. De Lee, Simpson, Sullivan, Oren, Franing, Lobdell, Thompson, Walton, Sala, Robb, Harter and, in closing, by the essayist.

On motion the Section adjourned until 2 p. m.

SECOND SESSION.

The Section was called to order at 2 p. m. by the Chairman.

Dr. Emil G. Beek, of Chicago, read a paper entitled "Bismuth Injections for the Treatment of Fistulae."*

Dr. Edward H. Ochsner, of Chicago, read a paper on "Treatment of Joint Tuberculosis."†

Dr. Beek's paper was discussed by Dr. Ochsner and the discussion closed by Dr. Beek.

Dr. A. Belcham Keyes, of Chicago, presented a paper on "Extrauterine Pregnancy and Hematocele."

Dr. A. B. Eustace, of Chicago, followed with a paper entitled "Ectopic Gestation."

Dr. C. B. Brown, of Sycamore, followed with a paper on "Obstetric Work by the Country Doctor."

These three papers were discussed jointly by Drs. Allaben, Bacon, De Lee, Heineck, Ries, Horrell, Lovewell, Gillmore, Eisendrath, and, in closing, by Drs. Keyes and Brown.

Dr. A. E. Prince, of Springfield, exhibited two patients, on one of whom he did a Killian operation and on the other a Yansen operation.

At this juncture Dr. T. J. Pitner, Chairman of the Committee on Nominations, presented the following report:

Chairman of Section One, Dr. Joseph L. Miller, Chicago; Secretary, Dr. T. A. Wells, Quincy.

On motion of Dr. C. B. Horrell, the report of the Nominating Committee was adopted.

Dr. Daniel N. Eisendrath, of Chicago, read a paper entitled "The Treatment of General Peritonitis Complicating Appendicitis."

This paper was discussed by Drs. Heineck, Ochsner, and, in closing, by the essayist.

Dr. A. E. Prince, of Springfield, read a paper entitled "Some Phases of Frontal Sinus Surgery."

Dr. Allen B. Kanavel, of Chicago, presented a "Contribution on the Diagnosis and Treatment of Acute Teno-Synovitis of the Hand," which was illustrated by stereopticon views.

This paper was discussed by Drs. Besley, Sullivan, Cohenour, Heineck, Thomas and, in closing, by Dr. Kanavel.

* For text of paper see page 38.

† For text of paper see page 31.

Dr. A. P. Heineck, of Chicago, read a paper entitled "Fracture of the Patella." which was discussed by Drs. Eisendrath and Bouffleur.

On motion of Dr. Eisendrath, a vote of thanks was extended to the Chairman and Secretary of the Section for making the meeting such a notable success.

Dr. P. J. Sullivan, Chairman of the Committee on Nominations for Section Two, said the committee recommended as officers for this Section for the ensuing year:

Chairman, Dr. Daniel N. Eisendrath, Chicago; Secretary, Dr. H. N. Rafferty, Robinson.

On motion, the recommendation of the committee was concurred in, and the Secretary instructed to cast the unanimous ballot of the Section for their election. This was done, and they were declared duly elected.

JOINT SESSION OF SECTIONS ONE AND TWO, THURSDAY, MAY 21, 1908.

BORDERLAND CASES.

The joint meeting was called to order by Dr. E. Wyllys Andrews, Chairman of Section Two.

Dr. Willis O. Nance, of Chicago, read a paper entitled "Some Observations on Ophthalmia Neonatorum."

Dr. Cecil M. Jack, of Decatur, followed with a paper entitled "The Ophthalmoscope in General Practice."

These two papers were discussed by Dr. Simpson.

Dr. C. G. Smith, of Red Bud, read a paper entitled "Fetal Death *in Utero*."

This paper was discussed by Drs. Harter, Jump, and, in closing, by Dr. Smith.

Dr. C. Hubart Lovewell, of Chicago, read a paper entitled "A Plea for More Active Cooperation with the Local Secretary," which was discussed by Drs. Simpson, Bacon and, in closing, by the essayist.

Dr. S. C. Stremmel, of Macomb, read a paper on "The Significance of Inflammation and Its Treatment."

This paper was discussed by Drs. Ochsner, Beck, Christie, Engelbrechtson, Bacon, Robb, Cooper, and, in closing, by the author of the paper.

Dr. J. F. Percy, of Galesburg, read a paper entitled "Psychic Aberrations Associated with Disease of the Prostate Gland," which was discussed by Dr. Norbury, and, in closing, by the essayist.

Dr. C. B. Horrell, of Galesburg, read a paper on "Diagnosis of Renal Stone Confirmed by Operation."

Adjourned.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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JULY, 1908.

THE CHICAGO MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

Undoubtedly the most successful meeting of the American Medical Association ever held was the meeting in Chicago during the first week in June, 1908. One who has been in touch with the association for the past twenty-five years can better appreciate what a remarkable change has been wrought in that institution by the adoption of the County Unit idea throughout the country. The whole association is now predominated by the idea of compactness of organization and a sense of strength due to the large and enthusiastic membership. Formerly the organization was a rope of sand. To-day it is a powerful cable binding together a multitude of units each capable of doing a vast amount of good when set to work under a proper organization. This feeling of unity and strength seems to us to be the predominant motive of the entire association.

Another gratifying fact noted was the scientific atmosphere which prevailed in all the sections. Certainly medicine is becoming more and more a science and less and less an art, and practitioners who fail to appreciate this change will rapidly drop behind in the race for supremacy.

The election of Colonel Gorgas to the highest office in the gift of the association will do much to bring the association forward as a great

power in national policies. We will be greatly disappointed if there is not a great change in medical affairs at the national capital in the next two years. Certainly no individual in the whole United States commands at this time more respect than Colonel Gorgas, and his remarkable achievements, both in Cuba and Panama, are demonstrations of the value of scientific ideas in national policies.

As was to be expected, Chicago left nothing undone in the entertainment of the thousands of guests present at the meeting. Unfortunately the meeting places were widely scattered and for this reason there was some inconvenience to those who wished to visit more than one section without great loss of time, but this will be found in almost every place of meeting except Atlantic City, and did not greatly militate against the remarkable success of the gathering. It is a fortunate thing that Atlantic City has been chosen for the next meeting, as certainly there is no place in the world so admirably adapted for such a gathering as that city.

Chicago may well take pride in the success of the meeting and be assured that it has been crowned as the leading medical center of the western hemisphere.

SHOULD THE STATE BOARD OF CHARITIES REMAIN AND BE SUSTAINED?

On April 28, 1908, the editor was requested to state the position of the medical profession of Illinois on the situation existing at this time. In answer to this request, the following statement was made, which we believed then, and still believe, reflects the sentiment of the great body of medical men of this State. This statement was printed on the last cover page of the quarterly *Bulletin* of the Illinois Board of Charities, and as far as we know has met with universal approbation: "The medical profession of Illinois is largely responsible for the founding of her State Charitable Institutions and has, therefore, a right to be heard at this critical period of their history. It knows of the deplorable conditions that have prevailed. It hopes for better things and believes that a good start has been made by the present Board of Public Charities. Instead of abolishing this board, it should be given larger appropriations and power to carry out reforms already undertaken. The institutions can never be what they should be until they are placed on a full Civil Service basis and taken entirely out of politics. When this is done, all classes of societies, and especially the medical profession, can unite to make them the best in the world."

We might say a great deal more in defense of this position, but fortunately our readers have kept in such close touch with the character of the antagonism that has been developed in the last year that extended defense of the present Board of Public Charities is altogether unnecessary.

Should any further statement reflecting the sentiment of the medical profession concerning political control of these hospitals for the sick and afflicted be needed it will be forthcoming.

CHRISTIAN SCIENCE FROM A THEOLOGICAL STANDPOINT.

Prof. Charles R. Henderson of the University of Chicago, in the May issue of the *Biblical World*, has spoken out clearly and distinctly concerning the most remarkable fad of modern times and has brought down upon his head the wrath of devoted Eddyites. Professor Henderson's article appears in the tenth chapter of a study of the social duties of cities: Public Health. In this editorial he advises the discussion of health subjects in church classes of adults, men or women, and cooperation with health authorities with the aid of lectures by physicians, factory inspectors and commissioners of Health. This article is interesting throughout and is an accurate index of the interest now being taken in sanitary matters by the educated laity.

We can only give place to his statement concerning Christian Science, which is as follows:

"This is the place for frank speech about the 'Christian Science' movement in which many estimable but misguided people are interested. Catching at a half-truth, the influence of a cheerful hope and collectedness of mind on bodily states, ages ago understood by physicians and shrewd observers, these people have built up a barrier of fanaticism and obscurantism between their votaries and all the representatives of real science. To this superstition countless deaths and untold suffering are already to be charged, because it prevented the early resort to modern scientific treatment. It is no kindness to our deluded neighbors to conceal from them our conviction that their ignorance is an enemy of public welfare and is thoroughly immoral. With their interior motives we have nothing here to do; their conduct is vicious and their leaders should be restrained by legal process like any other quacks."

He also makes the following remarks regarding vaccination:

"Vaccination is ignorantly opposed by a few fanatical persons, in spite of the overwhelming evidence of its value in suppressing smallpox; and the use of antitoxin in averting or curing diphtheria is antagonized on the same grounds."

We wish Professor Henderson God-speed in the noble work of endeavoring to train the minds of persons religiously inclined but so prone to wander from common sense into paths devoid of science and religion.

 IMPORTANT EVENT AT PHILADELPHIA THIS FALL.

During the week beginning Oct. 4, 1908, the city of Philadelphia will celebrate the two hundred and twenty-fifth anniversary of the foundation of that city, and we are pleased to know that the medical institutions will be amply represented at this time. The Executive Committee has forwarded us an outline of the various features of the medical program, which it is hoped will attract physicians from near and far. The Academy of Music has been engaged and addresses will be delivered by the best known professors of medicine in Philadelphia.

The four hundred delegates attending the National Congress on Tuberculosis will be invited from Washington to take part in the clinics

and demonstrations which will be given daily during the week. Friday, October 9, will be devoted to an historical pageant descriptive of the history of the city from the seventeenth century and the great and honorable parts which men of scientific attainments have placed in the progress of civilization, and the nation will be fittingly pictured. This pageant will be on the scale in every way equal to the famous pageants of England and Germany. It will also be the first historical pageant of its kind ever witnessed in this country.

To this celebration all medical men, whether graduates of Philadelphia schools or not, will be invited.

AS OTHERS SEE US.

The following ode, entitled, "To the Doctors," by Mr. George Fitch, appeared in the *Record-Herald* of Peoria at the time of the annual meeting of the State Society in that city:

TO THE DOCTORS.

Hail to the men of pills
 Who work the long nights through
 To cure our various ills
 With lancets, splints and glue;
 With salves and oils and wine,
 With iodids and soap,
 Sal volatile, quinin
 And many a high-priced dope.

Hail to the men of pills
 Who cure us, with great art
 Of spasms, fits and chills
 And carburetted heart;
 Of bruises, sprains and bumps,
 And boils of monstrous size,
 Dyspepsia, chilblains, mumps,
 And jimjams and cross eyes.

Hail to the men of pills
 Who mend us up with care
 And then once more with bills
 Break us beyond repair.
 To you our lives we owe
 The debt with sore dismay
 Has filled our bosoms so,
 That's why we're such poor pay.

Correspondence.

CANAL ZONE, ISTHMUS OF PANAMA.

BOARD OF HEALTH LABORATORY, MAY 15, 1908.

Dr. George N. Kreider, Springfield, Ill. Friend Dr. Kreider:—Your letter, acknowledging receipt of postal, received. As I was at first located on the Pacific coast and now on the Atlantic, I have learned a little about life on the Zone, and thought you would like to know something of the country and people.

The greater part of this country is very hilly, the hills ranging from 300 to 1,600 feet. They are covered with a scrubby dense growth of trees and vines. Winding among the hills are a few large rivers. In the valleys and on the hills you find orange groves, banana bushes, pineapple trees, mangos, cocoanuts and other fruit-growing trees. These fruits are very plentiful, with rice and coffee. Wares and ornaments made by the natives and fishing has been their chief support. There is some placer gold here, some silver and other minerals, so far in small quantities. These people in the towns are very shrewd. A few industrious natives grow lettuce, radishes, beans, tomatoes, corn, etc. In fact, it seems you can grow anything if it is cultivated. The deer are plentiful and destroy most of this crop.

The natives range from white to black and speak Spanish. The blacks are poor workers and let the women do most of the work. Not far down the coast the women do such labor as coaling vessels. It is a different people to the people here. Much of the labor on the canal is done by negroes. The commission pays them a small salary and keeps them. There is now on the Isthmus about 8,000 American people, 2,000 of these being women and children, most all being from the United States, but I believe there are people here from every country but Alaska.

The married quarters for gold employés (whites from the United States) are usually built for four families. They are neat, in well-located places, screened all round and built for protection from rain and sun and are well ventilated. As for air, they are the same as living out of doors. The houses in towns of any size all along the canal are furnished with electric lights, modern plumbing, shower baths, and some with telephones. These towns all have perfect drainage and sewerage. Each house has a garbage can, and the garbage is collected every morning. Houses are inspected if occupied by other than Americans. Streets are kept clean, and where paved are swept every night.

The commission is endeavoring to make life on the Isthmus the same as in a well-regulated town in the states, and the present commission has accomplished much, and the sanitary department has worked faithfully. They have made it a pleasure to live where ten years ago it was impossible to live. Before the Americans took charge the natives threw feces and all filth into the streets, and the homes were culture media for the most deadly germs. harboring rats, mosquitoes and flies by the mil-

lions. The buzzards are plentiful round here, but in those days they were in the streets, the same as sparrows in the states.

The bachelor quarters are buildings put up by the commission. Each building has modern toilets, shower baths, etc., and accommodates about fifty men. These men eat at Isthmian Canal Commission hotels for 30 cents per meal.

The commissary consists of large stores run by the commission along the canal, and furnishes anything from wearing apparel for the climate to eatables at prices almost as cheap as in the states—many things cheaper. They also run two laundries, an ice plant and a large bakery, all with a capacity sufficient for the demand.

Many people have wrong impressions as to life on the Isthmus. It is not the same as being with friends in the states, but otherwise there is little to complain of. The climate is not bad. The temperature in the sun is from 120° to 130°, in the shade 80°, and at night it is around 70°. The heat is not depressing, as there is a good breeze all the time. At night one sleeps under mosquito netting, a sheet and a woolen blanket. The nights are always pleasant. During the summer, or dry season, from December to May, very little rain falls, but its effect on vegetation is not noticeable. In fact, the Isthmus on either coast during these months is a health resort. The rainy season lasts about seven months. The rainfall at the Pacific side of the canal is 65.84 inches, at the Atlantic end of the canal the rainfall is 125.47 inches per year. The tide at the Pacific end of the canal is from twenty to thirty feet, and at the Atlantic end it is from five to six feet.

The diseases most commonly seen here are, in order, as follows: Malaria (tertian and estivoautumnal), dysentery, pneumonia, typhoid fever, black water fever, seldom yellow fever, and beri-beri.

In February last there were employed on the Isthmus 11,789 whites (not all Americans), with seven deaths, giving a yearly death rate of 7.12 per thousand. During the same month there were 32,250 blacks employed, with forty deaths, giving a yearly death rate of 14.88 per thousand for the blacks and giving for all employed a rate of 12.80 per thousand. There are 1,275 women and 1,067 children on the Isthmus, and during February there were no deaths among them. The social life on the Zone is encouraged by the commission. They have built club-houses, with gymnasiums, and many secret orders have been organized, as well as Y. M. C. A. clubs, social clubs, a number of ball teams and tennis clubs.

The Panama Railroad runs three trains each way across the Isthmus every day, with good accommodations. Gold employés (Americans) get a round-trip pass over this road each month. The canal work is progressing fast. To show the magnitude of the work, at Caimito last month nineteen and one-half tons, 39,000 pounds, of 45 per cent. dynamite was fired and 70,769 cubic yards of dirt and stone broken. To show the way material comes in for the canal, I saw a ship that carried 3,500,000 feet of lumber and one of more than 2,000,000 in dock at the same time.

The canal is not straight across the Isthmus. From the Atlantic side it runs in a southeasterly direction from Colon Bay for seven miles to the channel of the Chagres River, where it crosses the middle of Gatun Lake, then following, with the exception of a few curves, this river for twenty miles in a northeasterly direction. From here the canal is fairly straight and runs east to the Pacific Ocean. In the first eight or ten miles are some of the deepest cuts in the canal, some parts, I should judge, being 150 to 200 feet. In this part is the big Culebra cut. After getting through these cuts she reaches the channel of the Rio Grande River, which she follows about six miles, crossing Sosa Lake, and ends five miles out in the bay of the Pacific Ocean. The Gatun Lake is to have a capacity of 58,500,000 gallons. At the Atlantic and Pacific, at either end of the canal, suction and clapnet dredges are at work, day and night, dredging a canal or channel for five miles. The canal is, from one dredging point to the other, fifty miles in length. The width will be 500 feet at the bottom, 1,000 feet at the top, and the minimum depth will be 45 feet.

There is to be a series of dams at Pedro Miguel, Miraflores and Gatun.

The water in the canal will be furnished by the Atlantic and Pacific to their respective dams, and between the ocean dams by Gatun Lake.

Any nurse or doctor coming to the Isthmus should bring linen or white duck suits. A doctor should bring a treatise on tropical diseases and microscopical diagnosis. Owing to the dampness and being moved from one station to another, a doctor should carry as little as possible.

Yours truly,

O. H. DEICHMANN, Ancon Hospital, Ancon, C. Z.

QUINCY IS NOT UNETHICAL.

QUINCY, ILL., June 10, 1908.

Editor Illinois Medical Journal, Springfield, Ill. Dear Dr. Kreider:
—In the confusion which resulted from the coincident state meetings of the Illinois Medical Society and the Elks of Illinois, at the National Hotel at Peoria last month, we find that the means taken by the Elks to "boom" Quincy for their convention was considered by a number of the medical men as a breach of professional ethics and propriety on the part of the delegation from Adams County. The Secretary of the Adams County Medical Society was instructed to say that the physicians of this city and county had nothing whatever to do with such questionable advertising; questionable at least when indulged in by medical men.

Yours truly,

C. A. WELLS, Secretary.

COUNTY AND DISTRICT SOCIETIES

CARROLL COUNTY.

The Carroll County Medical Society held a meeting May 12, 1908, at Thomson, Ill., with Vice-President Dr. A. D. Hunter in the chair. The following papers were read: "A Case of Myxedema," Dr. S. P. Colehour, Jr.; "Masks in Chadwick," Dr. C. A. Harrison; "Mechanics of Perineal Laceration," Dr. J. D. Lyness; "Puerperal Infection," Dr. R. B. Rice; "Some Phases of Chronic Suppurative Otitis Media," Dr. J. Sheldon Clark; "Consumption," Dr. W. E. Clay; "Extra Uterine Pregnancy," Dr. J. E. Porter. A paper by Dr. Alexander Gray was also read. Drs. Stealy and Clark, of Freeport, were present and helped to make a very interesting meeting. The following were present: Drs. Colehour, Clark, Durkee, Hendricks, Hunter, Johnson, Melugin, Mershon, Metcalf, Natherson, Rice, Sagner and Stealy. The society accepted Dr. Natherson's invitation to meet in Chadwick in September and adjourned.

CLINTON COUNTY.

At the regular annual meeting of the Clinton County Medical Society, held at Carlyle, May 12, 1908, the following officers were elected for the ensuing year: President, Dr. J. J. Morony, Breese; Vice-President, Dr. B. J. Meirinke, Germantown; Secretary, Dr. John C. Klutho, Breese; Treasurer, Dr. J. W. DuComb, Beckmeyer. Dr. S. H. Wilcox, of Shattuc, was elected a member of the Board of Censors for three years to succeed Dr. C. E. Hill, of Aviston. The Board of Censors for the year now stands as follows: Dr. J. A. Bauer, chairman, one year; Dr. T. E. Alsop, two years; Dr. S. H. Wilcox, three years. The meeting was well attended, but owing to the amount of business on hand no scientific program was attempted. Dr. J. J. Morony was elected delegate to Peoria convention, and Dr. J. B. Meirinke, alternate.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, April 8, 1908.

A regular meeting was held April 8, 1908, with the President, Dr. Henry B. Favill, in the chair. Dr. J. Rawson Pennington read a paper entitled, "Sigmoidal Factor in Pelvic Diseases." The paper was discussed by Dr. T. J. Watkins, and in closing by the essayist. Dr. Milton H. Mack reported "A Case of Hysterical Retention of Feces Lasting Twenty-five Days." Dr. Victor J. Baccus followed with a paper entitled, "Peri-gastric Adhesions, Gastrolysis, with a Method to Prevent the Recurrence of the Adhesions; the Operation of Choice in Selected Cases."

THE SIGMOIDAL FACTOR IN PELVIC DISEASES.

J. RAWSON PENNINGTON, M.D.

Professor of Rectal Diseases, Chicago Polyclinic, Chicago.

(*ABSTRACT.*)

RELATIONS AND INFLUENCES.

I was greatly impressed, when making some observations concerning the anatomy and physiology of the sigmoid and rectum in 1899 and 1900¹ by the various lengths, positions, and adhesions of the sigmoid and of its relations to the pelvic viscera. In fact I was so much impressed with these various con-

1. Jour. A. M. A., Nov. 30, 1900.

ditions that I believed then, have taught since, and still contend, that an adherent, extra long, overfilled, or loaded sigmoid, particularly when it has an extra long mesentery, is more frequently than usually considered a potent factor in the production of many diseased conditions occurring in the pelvic viscera. Especially was I impressed with the possible pathological influences of such conditions on the uterus and its adnexa; and, in this paper, shall confine my remarks to these relations and influences.

If the foregoing premises are true, then the treatment of cases of utero-ovarian diseases caused by such conditions, should, it seems to me, be directed primarily to the sigmoid and rectum, and secondarily to the uterus and its adnexa. But, you ask, what percentage of utero-ovarian diseases are due primarily to sigmoidal influences? Not being familiar with any statistics bearing on this subject, I shall state that it is my opinion, based on the following clinical observations and autopsy findings, that quite a large percentage of such cases, a much larger percentage than you would imagine, are caused by conditions emanating from sigmoid and its mesentery.

CLINICAL OBSERVATIONS.

1. It has been my observation that more than 75 per cent. of adult women whom I have examined for some rectal or sigmoidal disease have had, in addition to the bowel trouble, more or less uterine disorder.

2. In making protosigmoidal examinations, from one-half to two hours after defecation, of young girls, between the ages of 16 and 22 years, suffering from some form of uterine disorder; such as leucorrhœa, dysmenorrhœa, etc., I have found the rectum and sigmoid more or less filled with feces.

3. That *pari passu* with the relief and improvement of the rectal and sigmoidal conditions, in a large percentage of these cases, there will also be observed relief and improvement in the uterine trouble.

4. That when the sigmoid and uterus sustain normal physiological relations to each other and the former is loaded and unloaded periodically, then the effect of the sigmoid on the uterus is salutary. This is true because the normal physiological position of the uterus is one of suspended mobility in an antverted state, and such functions are physiological. But, on the contrary, if the functions of the sigmoid are compromised by adhesions or some other pathological or anomalous condition, then, we should expect it to have a detrimental rather than a salutary effect on these organs, and that is what we usually do find. Again you ask, and quite pertinently, too: What percentage of these cases have adhesions or some other pathological or anomalous condition of the sigmoid; and, in what percentage of the cases does the sigmoid fail to load and unload periodically?

Byron Robinson (*Medical Standard*, 1907) says that in 800 adult autopsies (600 men and 200 women) of which he has a record, adhesions of the sigmoid were found in 80 per cent. of the men and 85 per cent. of the women. Furthermore, every laparotomist and every prosecutor knows of the frequency of such adhesions; and every physician and most laymen are familiar with the prevalence of constipation.

AUTOPSY FINDINGS.

Autopsies show that the sigmoid may overlap, wind around, rest beneath or on these organs, and that it may be adherent at various points. Such conditions not only compromise its functions, but those of the uterus and its adnexa. The uterus when sustaining such relations to a chronically loaded sigmoid, may be displaced upwards, downwards, latterly, backwards or forwards, and held or fixed in that position. This interferes with its mobility and functions, hence produces a pathological state of that organ. If the uterus is continuously held or fixed in any relative position, whatsoever be that position, anteversion or otherwise, and whether it be by tumors, an overloaded or adherent bowel, or what not, it must sooner or later become congested and the victim of infection.

The normal pathological position of one's hand, for example, is likewise that of suspended mobility, and when by his side is in a normal relative position. Yet it can not be gainsaid that if it be continuously maintained in that position, either by tying or any other means, it will, sooner or later, become congested and in a pathological state; so will the uterus if it be maintained permanently in any relative position.

This compromise of the mobility of the uterus places it under stress, and an organ under stress becomes turgescient, crippled, and is, therefore, not in a good condition or the best position to defend itself against the invasion of microbes.

SYMPTOMS.

Doubtless you will have anticipated that the symptoms arising from such complex conditions would be primarily from the sigmoid; and secondarily, from the uterus, ovaries and oviducts. But such is not the case. The man who steps on your toe, for example, is not the one that usually makes the first outcry. Yet he is the offender. Neither is it the sigmoid that necessarily presents the first symptoms, although it may be impinging on the uterus. As regards the relative time of the manifestation of the symptoms it is, in the majority of cases, the uterus and its adnexa to which complaints are first referred and for which relief is sought; and, frequently, not for a considerable length of time, indeed sometimes not at all, is the complaint referred to the organ that is the real source of the mischief. Among those symptoms emanating especially from the uterus may be mentioned leucorrhœa, dysmenorrhœa, metorrhœgia, and menorrhœgia, while those pointing directly to the bowel factor are constipation, an overloaded bowel with daily evacuation, painful defecation, mucus in the stools, etc. Among those common to all the organs considered are hemorrhage, nausea, sensation of weight in the pelvic region, especially at the menstrual period, pain or heaviness in the left or right groin, dragging pains in the iliac and lumbar regions, headache, lassitude, nervousness, tired feeling, etc. Patients with such symptoms usually seek relief for the uterine and ovarian troubles only. They regard the symptoms which are especially associated with the bowel factor as of little or no importance. Even the consulted physician frequently fails to realize the value of this factor. Why? Because, first, he seems to forget the anatomical and physiological relations existing between the rectum and the sigmoid and the uterus and its adnexa; second, he rarely, if ever, examines the rectum and sigmoid in cases of utero-ovarian disease except in a perfunctory manner. It is obvious, therefore, that the conclusion reached by such an examination is faulty.

DIAGNOSIS.

Here again we are confronted with the same complicated proposition as when we attempted to write the symptomatology. To make a diagnosis in a case of suspected utero-ovarian disease, or, in one presenting the foregoing symptoms, it is as necessary to make a complete and thorough rectal and sigmoidal examination as it is to make a complete and thorough uterine examination. The former, as a rule, should be made first. Especially is this true in the case of young girls and unmarried women; as this examination may give sufficient information without making the latter. If not, then the uterine examination should be made by the usual "touch" bimanual and instrumental means.

One of the objects in making a rectal and sigmoidal examination is to ascertain whether or not the sigmoid and rectum are emptied and refilled periodically. An individual may defecate regularly every day and yet have a continuously loaded bowel. Such a condition may interfere with rhythmic uterine action; and, if not corrected, cause a pathological state of that organ. Hence the necessity and importance of proctoscopy, sigmoidoscopy, palpation, etc., when making such examinations. It is not necessary for the uterus to be pushed to one side or down in the pelvis and held there, as shown in some of the foregoing illustrations, to become pathological. It is a movable organ and its

position is one of suspended mobility. Anything, therefore, that immobilizes it continuously, it matters not what the relative position of the uterus may be, compromises its functions with a pathological sequence. A persistently loaded sigmoid and rectum may produce this pathological sequence. If the patient has fibrosis of the rectal valves, chronic hypertrophic or atrophic proctosigmoiditis, contractions, strictures, kinking, adhesions, or an extra long sigmoid or mesentery or other conditions interfering with the regular rhythmic loading and unloading of the sigmoid and rectum, she, in the course of time, is most likely to have leucorrhœa, dysmenorrhœa, and other symptoms pointing to the beginning of a pathological state in her genitalia.

The mere statement of a patient that she is not constipated because her bowels move once or twice daily is not to be accepted as conclusive evidence that she has not an overloaded bowel. In fact, when a patient states that her bowels move twice daily and that both movements are close together, I usually expect and do find a continuously filled or diseased bowel.

TREATMENT.

From the foregoing it would seem that the treatment of many pelvic diseases should be directed primarily and early to the sigmoid and rectum, and secondarily, to the uterus and its appendages. To treat, for example, a uterine disorder due to sigmoiditis, mesosigmoiditis, or perisigmoiditis, or to hypertrophic or atrophic proctosigmoiditis, fibrosis of the rectal valves, or to a continuously overloaded bowel, etc., by topical applications and vaginal tampons is not only useless, but positively harmful. Such treatment of this class of cases allows the condition to advance and leads to the later stages of pelvic disorders which necessitate more severe and radical measures. In such cases topical treatment seems to benefit the patient temporarily; but, as a matter of fact, the condition continues to grow worse and worse until finally hysterectomy, oophorectomy, salpingectomy, or hysterosalpingo-oophorectomy with their deplorable sequences, have to be performed.

If the condition causing these troubles have advanced to that stage where they can not be corrected by simple methods and general tonic treatment, then laparotomy should be performed; not, however, for the purpose of removing the tubes and ovaries, but to apply such surgical measures to the offending sigmoid as may seem indicated. Incidentally, of course, any requisite operative work on the uterus, tubes, and ovaries should be done at the same time.

Case 3 serves to illustrate the point in question.

Miss L., age 25, was referred to me by Dr. Gratiot of Mineral Point, Wis., May 2, 1905. She gave a history of inflammation of the bowels the previous February. She was a typical neurasthenic, and had lost 20 pounds in weight, had fibrosis of the rectal valves, proctosigmoiditis, and was constipated. Her left ovary and oviduct was tender, and she suffered from leucorrhœa and dysmenorrhœa. Procto-valvotomy, lavage with manual massage, and general tonic treatment gave her some relief only.

She returned Dec. 14, 1905, conditions about the same as when she first consulted me. Laparotomy exposed adhesions of the sigmoid to the broad ligament and parietal peritoneum on the left side which confirmed my diagnosis. These were severed and the raw surfaces covered. Her improvement was very marked. Bowels became quite regular, leucorrhœa, dysmenorrhœa, and tenderness over ovary and oviduct disappeared. She has returned three different times since the operation because of beginning pain in the left side. After a few treatments with lavage and manual massage the pain disappeared and she returned home feeling quite well again. She has had no leucorrhœa or painful menstrual periods since the adhesions were broken up.

Her bowels have not improved so as to move regularly every day without some little assistance; yet, there is marked improvement over her former condition and the uterine and ovarian troubles have entirely disappeared.

DISCUSSION ON THE PAPER OF DR. PENNINGTON.

DR. T. J. WATKINS.—I disagree almost entirely with what Dr. Pennington has said in regard to the disease mentioned of the uterus, ovaries and tubes resulting from the sigmoid. I was sorry he did not go more into details as to what he meant by "sigmoiditis" and a little more into the detail of pathology of "the adhesions." I was also rather surprised that he did not take up the relation of impactions and displacement of the sigmoid as an etiologic factor in varicose veins, especially in varicosities in the left broad ligament, on account of the anatomic relation, and on account of the opportunity for pressure upon the veins from the left broad ligament. There has been considerable said about varicosities of the broad ligaments, especially upon the left side, and I think this would have been a very good opportunity to consider the relation of diseases of the sigmoid to these varicosities.

One who opens the abdomen occasionally is surprised at the statistics as regards adhesions of the sigmoid. It would seem that one almost never encounters adhesions of the sigmoids excepting in cases that have had a very acute pelvic infection, generally a puerperal infection. There it is easy to account for adhesions of the sigmoid, on account of the relation of the lymphatics and blood vessels of the left side of the pelvis to the sigmoid. It is not uncommon in severe cases to find the mesentery of the sigmoid very much thickened—in fact, sometimes the entire sigmoid seems as one solid mass, and yet many of these cases have no intestinal symptoms. One should discriminate between adhesions and peculiar formations of the mesosigmoid. One should, however, be mindful that adhesions of the sigmoid may result from old attacks of appendicitis, tuberculosis, especially in early childhood, and the like.

As regards pressure upon the uterus, the writers upon these diseases have paid very little attention to the pressure of the sigmoid, and it would seem that the sigmoid is a small factor in the etiology of uterine displacements. The cases of antelexion should be excluded because antelexions are not pathologic, and we may rule out lateral flexions and lateral versions, as these are attended by very few or no symptoms. In fact, backward displacements of the uterus generally produce no symptom in the absence of adhesions or of enlargements. The gynecologist very seldom finds adhesions of the uterus, ovaries and tubes in cases where there is not a history of infection, either a puerperal infection, or more commonly a gonorrhoeal infection, or occasionally some other infection. One almost never finds these adhesions without a history of pelvic peritonitis which has been severe enough to keep the patient in bed. Many of the symptoms Dr. Pennington gave are due to asthenia, and are not pelvic symptoms.

Dr. Pennington (closing the discussion): Dr. Watkins seems to be of the opinion that such adhesions are caused by infection from the oviducts only. Some of these illustrations (referring to the charts) were not intended to illustrate the paper; but, fortunately they will serve to answer Dr. Watkins' idea in regard to the causation of the adhesions.

1. This illustration (referring to the charts) was made from a case on which I operated. As it was a male there was no infection from the tubes because there were no tubes to cause the infection. 2. This illustration was made from a case reported to me some years ago by Dr. Frank Earle of this city. I repeatedly advised him to undergo an operation, but he refused. Finally I obtained his consent. On opening the abdomen I found the adhesions such as shown in the illustration and divided them. This relieved his pain in the left side and while his bowels are not perfect in action yet his improvement is very marked and he is greatly pleased with the result. 3. This illustration was made from an autopsy. The sigmoid was under the liver. Note the extensive adhesions of the sigmoid in this case. The appendix seemed to be normal. Where did the infection come from in this case? 4. Here is an illustration of another male in which an appendix epiploica was fastened to the bottom of the pelvis in such a manner as to cause a kink in the sigmoid. How do you

account for this adhesion? There were no tubes here. Remember these four cases were all males. 5. This illustration is from a young girl on whom I operated. There were no indications in her case of tube infection, but there were adhesions of the sigmoid to the left parietal peritoneum.

Regular Meeting, April 15, 1908.

A regular meeting was held April 15, 1908, with Dr. C. G. Buford in the chair.

1. Temporary Ventral Suspension of Uterus; Its Technic, Indications and End Results, by Dr. E. H. Ochsner. Discussed by Drs. C. W. Barrett, A. Goldspohn and E. H. Ochsner. 2. A New Technic for Nephropexy, by Dr. Alex. H. Ferguson. Discussed by Drs. E. Ries, A. Goldspohn and A. H. Ferguson. 3. Vertebral Auscultation, by Dr. E. A. Gray. Discussed by Drs. T. B. Sachs, F. Tice and E. A. Gray.

A paper on "The Temporary Ventral Suspension of Uterus; Its Technic, Indications and End Results," was read by Edward H. Ochsner, M.D.

DISCUSSION.

Dr. Channing W. Barrett:—I wish to commend that part of the paper which states the indications against doing any permanent fixation or suspension, and to call attention to the fact that this operation does not aim to take the place of round ligament operations, when they can be done. I presume that Dr. Ochsner confines this operation mostly to those cases in which bringing the ligament through the abdominal wall is contraindicated, in cases of sepsis in the pelvis, where the ligaments of the uterus are involved, and the round ligament operations are not applicable. Of course, where there is any abrasion of the peritoneum of the uterus, we will get an attachment to the abdominal wall, and in such cases it would seem that the work could be accomplished almost as well or better by inserting a pessary for a time. In these cases I would prefer to do something that I felt quite certain would be permanent rather than something that looks toward a temporary result.

Where we do not want to bring the round ligaments through the abdominal wall, I employ an operation which is something of a modification of Webster's, where we have removed the tubes and ovaries and we want to hold the uterus in place permanently. The operation for the cure of retrodisplacement must be safe and simple, and which makes use of normal ligaments instead of creating false ones, and use the best part of the ligament possible. We must avoid creating any ligament which will make trouble afterward. When dealing with a septic pelvis, we can not be too sure when bringing two peritoneal surfaces together that we are not creating a permanent ligament where we intended to get a temporary one. Kelly, Hurdon, Lynch and others pointed out that we may get a permanent fixation where we intended to have only a suspension.

Some have gone so far as to decry fixation and recommend suspension, and yet Kelly goes so far as to condemn suspension in a pregnant patient and recommends a previous curettage in every case, for fear of getting fixation where he intended to have only suspension. There is no way of telling whether you will get a temporary or permanent suspension when dealing with a septic pelvis. Lynch has given us a list of end results in 21 cases of Caesarian section; ten cases of rupture; two cases of dystocia. It would seem at the present time that the most desirable end result of all in dealing with retrodisplacement of the uterus would be doing away absolutely with fixations and suspensions.

Dr. A. Goldspohn:—I can see a rational use for this operation only in a small number of cases, particularly where tumors or pus tubes, neoplasma or inflammatory products require removal, and leave extensive raw surfaces in the cul-de-sac, cases in which the uterus before operation is not retroverted, where retroversion was from the beginning not an indication for operation. In such, with the uterus in normal position, with the removal of these things, leaves the uterus more movable and liable to drop over than before, and it is rational to do something to hold it and prevent its dropping over into the denuded area and getting fixed.

But even then, is this method the best thing to do? About eight years ago before the American Medical Association, I analyzed and presented reasons, which at the time met no opposition or refutation. A declaration which I laid down then was that it is impossible for any operator to determine certainly by that method of suturing, how strong a ligament he may get. He may aim at a very insignificant structure and get a very firm, strong one, owing to round cell infiltration and connective tissue formation induced by slight infections. On the other hand, if he draws his sutures too tight he will not get as strong a structure as he aimed at because he will shut off circulation. Therefore, if it is possible to use a natural structure like the round ligament, we should use it. There are cases where it is not possible to isolate the ligament on account of inflammatory infiltration. That will be true of this small number of cases in which from the beginning displacement does not constitute a part of the purpose of operating. If retroversion is present from the beginning, it will tend to recur in such pronounced manner that such a slight fixation will amount to nothing, and then a permanent method is again called for. I can not agree from the experience with a number of hundreds of cases that I would not use the round ligament if it can be isolated after the method of Gilliam, for instance, modified to suit my own belief, in septic cases. I have done it many times and have had no occasion to regret it.

Another statement was made by the essayist that this temporary fixation or suspension will serve the purpose long enough for the round ligament by rest to recover its tone and to shorten up. I emphatically deny that as a probability. It is a fixed structure and will not shorten up after lying idle. That has been proved by hundreds of cases during pessary treatment. The round ligament will not become stronger or shorter unless we attempt this procedure soon after parturition when involution is going on or can be revived. Then it will shorten up, if it is not stretched, but not thereafter.

Dr. E. H. Ochsner, (closing the discussion):—First of all, let me emphasize that this is not a cure for everything. I specified that the operation is indicated only in a relatively small number of cases, if there was suppuration in the pelvis, and if after abdominal work was finished the uterus fell back into the pelvis. I am very skeptical as to the efficiency of the pessary in such cases as that. I know this works. I have tried it 75 times. I have not reported it for six years in order to try it. You may theorize all you like; the proof of the pudding is in the eating, and I know that this does the work in these selected cases.

As to the looping of the round ligament. I used to do that until I caught onto this trick. I have seen 25 or more cases where the Webster or other looping operation was done, where the uterus was nailed to the sacrum as though a ten-penny nail had been used. Looping the round ligament intra-abdominally is absolutely useless. The more you loop it, the more you will have to operate, because you are using the weakest part of the ligament. A recurrence of 31 per cent. after the operation of looping shows that it ought to be discarded.

I do not strive for any permanent ventrosuspension. There is no permanent adhesion between the uterus and the anterior abdominal wall. I have examined these cases afterward, probably 50 of them, and the uterus was not fixed to the anterior abdominal wall after several months. Three cases I opened and there was not the slightest evidence that the uterus had been brought forward. If you have two organs in contact, one of which is covered by normal epithelium, you can leave them in that position for all time; union will never become permanent. The only way you can get intra-abdominal adhesions is when two organs that are abraided are in apposition. I have opened a hundred cases at least where adhesions had loosened. That is the experience of every abdominal surgeon who does not claw around to abrade surfaces.

As to whether the round ligaments can shorten. I am absolutely convinced that they do contract, become stronger and thicker, just like any other muscle

will when placed at rest. The three cases I opened showed that the ligament was three times the diameter at the second operation that it was at the first.

Dr. Alexander H. Ferguson read a paper on A New Technic for Nephropexy.

DISCUSSION.

Dr. Emil Ries:—The paper is deserving of some comment because it brings out some points to which attention is not always paid in operations for fixation of movable kidney. A large number of these operations have been done without any proper indication for degrees of mobility of the kidney within the limit of physiology. It makes a great difference whether you operate for a floating kidney which causes decided symptoms or whether the operation is performed only because the kidney can be palpated more easily than the surgeon thinks it should. In these latter cases any operation that fixes the kidney will prove satisfactory. The operation is considered satisfactory as long as the organ is fastened, but if you will take the trouble to examine a number of kidneys fastened in this way, you will find that the kidney is palpable in a large number of cases as easily as it was before the operation.

There are various methods of operating on floating kidneys, the rule, however, as I have noted in a number of cases, is that the stitches which hold the kidney are passed through the edge of the wound, that is below the edge of the ribs, so that the kidney is fastened below the edge of the ribs; and here is where Dr. Ferguson points out a decided improvement on the technic of kidney fixation. He fastens the kidney in its proper place, above the twelfth rib, where it ought to be. Whether it is possible to feel adhesions of the liver which obliterate the normal place of the kidney I am unable to say. I have never seen it, and I have never felt the necessity of taking a sponge and making a bed for the kidney by pushing away the liver. My experience has been a rather limited one, but if there are such cases, the adhesions should certainly be removed.

Then Dr. Ferguson mentions that he passes the stitches which are to support the kidney not through the kidney itself, but through the capsule, and that he fastens the capsule not to the edge of the wound, not below the ribs, but high up, passing the stitches through the abdominal parietes. By utilizing the capsule he can fasten the organ higher up than he could do otherwise.

The support to be given by the fatty capsule may be useful, but fat tissue is rather an unstable support, and it is doubtful that it will do much good. The flap of the quadratus lumborum muscle will certainly hold as long as it remains a flap of muscle; but how long will it remain so? A flap of muscle tissue detached from the muscle, even though united to it by a bridge, is doomed to degeneration. It will be converted into connective tissue sooner or later, a scar, and if such a support of the kidney by a sling of connective tissue is desirable, well and good. It has been tried by using connective tissue from the start. McArthur, I believe, reported such an operation a number of years ago. I have used the capsule of the kidney also, only in a slightly different manner from that described by Dr. Ferguson. I have peeled off the capsule and cut it into strips, two or three on each side, and pushed these strips through the abdominal parietes at a distance from the wound in order to hold the kidney up, passing a stitch through the fascia of the muscle and the strip of capsule. Then the kidney was suspended by the capsule proper and no foreign body was left in the neighborhood of the kidney.

Now, how much of a fixation is desirable? I think the fact that Dr. Ferguson fixes the capsules at a little distance from where the capsule inserts on the kidney is important because thereby he undoubtedly gives the kidney a certain amount of mobility which it must have because it is normally mobile. If you fix the kidney so that it is absolutely immovable, you will have more trouble after the operation than before. I think that the points brought out by Dr. Ferguson's technic are well worth considering.

Dr. A. Goldspohn: I can not coincide with Dr. Ries that the plan of suturing the kidney in the wound on the same plane with a part of the kidney that the

sutures grasp, is a common practice. I had thought that the reverse, namely, the plan that Dr. Ferguson pursues, was generally practiced. As far as I have seen such work and done it myself, I have placed the sutures so that when they are tied they have raised the kidney. Fibrous capsules of a kidney that has suffered from engorgement due to displacement, to the degree that it really needs such an operation, is so fragile and delicate that it serves very little as a support, especially for the grasp of a suture, and to make this capsule worth anything, I think that partial decapsulation, after the manner described by Dr. Ferguson, and then twisting these flaps of capsule into rope, is of more service than individual flaps of capsule. And these ropes can be drawn through muscular structure at sufficiently elevated points and far enough from the edges of the wound and sutured there, so that they really amount to something in elevating the kidney.

I combine with that the suggestion of Dr. E. Wyllys Andrews of using the fatty capsule also for fixation, not by suturing it, because this fat is worse than the fibrous capsule for suturing, but you can make it serve by gathering it up en masse, on both sides of the kidney and pull on it in a mass, and anchor it as such between the muscular edges of the wound, which are united by mattress sutures. It then frequently acts as a material factor in the support of the kidney. How practical it would be to dislodge this fat and sever it from its circulation and crowd it down beneath the lower pole of the kidney, as Dr. Ferguson suggested, I do not know. I have not tried it.

The use of a muscular flap is an ingenious proposition, but it is open to the objection made by Dr. Ries, and its dwindling away to a fibrous structure must be remembered.

Dr. Ferguson (closing the discussion):—There is one point in regard to floating kidneys that we must remember, and that is that it is not always floating kidneys alone that we have to deal with. In a little more than 50 per cent. of my cases, I explore the entire abdomen through this oblique incision, and I sometimes find an appendix that is diseased. In one of my last cases I found a fibroid of the uterus that had not been discovered. In still another case I found gallstones that had to be removed. But that has nothing to do with the subject of the paper.

With regard to the fat, I think that Dr. Goldspohn will find that it is an easy matter to displace it; go through its fibrous covering without tearing at it or interfering with its circulation. It does not need much circulation, and any fat that is injured during the operation I do not hesitate to remove. I do not place so much importance on that.

Placing the kidney higher up is an advance in technic, and it is really remarkable how in some cases you can push away with a gauze sponge the liver and diaphragm and place the kidney back in its old bed. It is of considerable importance to make a new bed where it is necessary. Of course, that is necessary only in old cases.

With regard to the indication of operating on every loose kidney. Dr. Ries pointed that out very nicely. A kidney should not be insulted by an operation. I have had a patient for the past 25 years in whom both kidneys can be pushed down into the pelvis and crossed, and yet there is no indication for operation.

All operations employed heretofore have passed the stitches below the twelfth rib, and one man pushes the rib through the kidney and keeps it there. I pass these sutures as high up as I can above the twelfth rib. That certainly will help to keep the kidney up. When the stitches are put in with a couple of turns, even in a thin friable capsule, you have the roll that Dr. Goldspohn mentioned, and you have a firmer attachment to pull on than when you cut the capsule into strips. These strips are liable to tear unless you twist them, and fibrous tissue does not need much nutrition, but when you do twist it, it receives but very little; therefore I believe that my method, by which the stitches roll the capsule, is better.

With regard to the flap of muscular tissue. The worst it can do is the best it can do, and if it is converted into fibrous tissue, it is just what I want. What I have been afraid of in these cases is that the muscle flap will pull away before

fibrous union takes place and then leave the kidney without any support at all. I have had occasion to cut down on a kidney twice, and in one case I removed a kidney for stone later. I took particular heed to examine the flap in both cases. If a liberal flap is taken and it is sutured firmly to the kidney, it will not tear away before it is converted into fibrous tissue at the termination. It remains muscular at the base. You can readily understand how the muscular tissue at the base will be maintained on account of the motion given to the kidney by respiration.

Regular Meeting, April 22, 1908.

A regular meeting of the society was held April 22, 1908, with President, Dr. Henry B. Favill, in the chair. "Treatment of Gallstone Disease," T. C. Kennedy, Shelbyville, Ind.* "Clinical Manifestations of Hemorrhagic Renal Infarct," George Halperin. Dr. Kennedy's paper was discussed by Drs. E. F. Wells, A. B. Keyes, F. B. Turck, W. Fuller, A. W. Bare, C. L. Wheaton, Max Reichmann and T. C. Kennedy. Dr. Halperin's paper was discussed by Drs. E. F. Wells, Max Reichman and G. Halperin.

DISCUSSION ON DR. HALPERIN'S PAPER.

Dr. E. F. Wells:—I was greatly surprised at the paucity of the literature on this subject, especially when ulceration endocarditis is not infrequent. I would like to ask Dr. Halperin whether he has information as to whether the hemoglobin was confined to the urine, or whether it was also present in the blood serum.

Dr. Max Reichmann:—Dr. S. C. Plummer recently sent me a case, a lady, who had symptoms of renal calculus. I made a radiograph of the right kidney and found a marked shadow, which I diagnosed as stone. Dr. Plummer operated and failed to find the stone, but found instead an infarct. Of course the shadow could not be caused by the infarct, but was caused either by a calcified gland behind the kidney or a calcified scar in the kidney. The case shows how difficult, if not impossible, a differential diagnosis between stone and infarct is.

Dr. Halperin (closing the discussion)—One of the reasons why the literature upon the subject is so scarce is because renal infarcts are very rarely manifested clinically. My paper deals with those cases only which gave rise to symptoms. It would be interesting to know why in one case the infarct produces intense pain while in another a similar lesion gives rise to no symptoms at all. Of the three theories advanced to explain the pain, namely: the insult to the renal plexes, the inflammatory reaction, and the tension upon the capsule, the last, it seems to me, ought to appeal to every one. But how will we reconcile the fact that in cases where pain was absent or trivial, large infarcts were found postmortem? The size of the infarct does not seem to bear a definite relation to the amount of pain. In my case the diagnosis was not made antemortem for the reason that infarct was not thought of. It seems to me that the antemortem diagnosis in this case was not altogether impossible had we given more consideration to the etiology and symptoms. The endarteritic process which caused gangrene of the foot should have suggested the possibility of same process in the renal artery. The fact that the pain did not radiate downward together with negative x-ray pictures certainly spoke against a calculus and for an infarct.

In conclusion I wish to emphasize once more that in the great majority of these cases the etiologic factor is found in the diseases of the left side of the heart, particularly in mitral stenosis, which is the most common cause of embolism in the brain, the spleen, the lung and the kidney.

INFLUENZA IN CHILDREN.†

A. C. COTTON, CHICAGO.

Although no age is exempt, influenza in young children is apparently less frequent than in adults. Cases have been reported in the newly born. The period of incubation is very brief, frequently only a few hours, and no distinct prodromata are recognized.

* For text of paper and discussion see page 47.

† Read before the West Side Branch of the Chicago Medical Society.

Among the many symptoms of this disease three groups stand out somewhat prominently, which has led to the use of such terms as abdominal, pulmonary and nervous forms of grippe. In children the catarrhal symptoms usually predominate, the attack resembling that of measles in its coryza, cough and mild angina. The onset is usually sudden, with high temperature (which may follow a chill), also severe headache, backache and vague muscular pains. Vomiting may be the first symptom, accompanied by abdominal cramps, with either constipation or diarrhea. Great restlessness and even delirium may be present, or convulsions in infants; or there may be apathy, somnolence or coma.

The temperature usually shows marked daily remissions of wide range; frequently reaching normal or below in the morning. Angina is rarely absent, and may be severe, so that swallowing is difficult; the tongue is coated, the conjunctival vessels injected, and the cough may be frequent and harassing, though examination of the chest may yield only a few moist râles and the pulse-respiration ratio show little disturbance. Sometimes the bronchial catarrh extends to the capillary tubes, or occasionally a fibrinous pneumonia from the diplococcus of Fraenkel develops with accompanying pleuritis, but more frequently a bronchopneumonia. With convulsions there may be stupor, head retraction, cervical rigidity and symptoms of meningitis with bradycardia and sighing respiration.

In infants the diarrhea and vomiting may simulate acute gastroenteritis, with frequent green or watery stools, and rapid emaciation. In fact, the degree of prostration in la grippe is almost always remarkable considering the brief period of duration.

In from two to five days the acute symptoms usually subside, leaving the child sometimes with subnormal temperature, weak and irregular or very slow pulse. Convalescence is often tedious and may be marked by recurrence of symptoms upon the slightest exposure to cold. Other cases are so mild as to constitute merely an indisposition.

Complications.—No other acute disorder presents the variety of complications seen in influenza. It is owing to this fact that a typical picture of simple grippe is rather the exception. Among the most common complications are pneumonia, pleurisy, emphysema, otitis media, mastoid disease, pulmonary atelectasis, empyema, myocarditis, endocarditis, meningitis (cerebral and cerebrospinal), follicular tonsillitis, herpetic stomatitis, cervical adenitis, and a number of urticarial and erythematous skin eruptions, with occasionally acute or chronic nephritis. The most frequent sequela are anemia, hypertrophied lymphnodes, adenoids, enlarged tonsils and tuberculosis.

Diagnosis.—A mild, simple influenza, most frequently resembles acute catarrh (common cold), and in the absence of an epidemic it is usually so diagnosed. It differs, however, in its greater communicability and in the severity of its complications. The severer uncomplicated forms may be diagnosed from diseases which they resemble—as pneumonia—by careful examination for physical signs, by the sequence and duration of symptoms, and by the absence of leucocytosis, which invariably accompanies fibrinous pneumonia. Malarial fever, which it may closely resemble, shows the peculiar hematozoon and yields to quinin. Typhoid fever is more persistent in its pyrexia, enlarged spleen with rose spots. Diaz and Widal reaction will give confirmation. Measles shows Koplik's spots and an early characteristic eruption. Scarlet fever may be suspected in the presence of an accidental erythematous eruption, but should be accompanied by early leucocytosis and later by desquamation. Pertussis usually shows increase in lymphocytes, and the characteristic cough is progressive with only slight tendency to pyrexia. In gastroenteritis, grippe may be suspected if high temperature and catharrhal symptoms of the respiratory tract persist. From meningitis differentiation may be made by the disappearance of cerebral symptoms upon subsidence of the temperature. During the prevalence of epidemic influenza that disease is usually credited with many disturbances to which it bears no relation. In doubt-

ful sporadic cases a bacteriologic examination of the catarrhal secretions and of the spinal fluid obtained by lumbar puncture, may be necessary.

Prognosis.—Few children die of uncomplicated gripe, especially in its epidemic form. The many possible complications, however, afford so wide a range of morbidity as to leave no basis upon which to compute its mortality. Occasionally the child is overwhelmed with influenzal toxemia and dies within a few days after the initial symptoms, but such occurrence is rare and death is usually due to some complication. Influenza is to be dreaded, especially for the predilection of its convalescent patients for all other acute infectious disorders, also for neurasthenia, weak heart, pulmonary disorders and tuberculosis. It must not be forgotten that a number of *bona fide* cases of fatal meningitis have been reported in children in which the Pfeiffer bacillus seemed to be the only etiologic factor.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held Oct. 8, 1907.

A regular meeting was held Oct. 8, 1907, with the President, Dr. J. Holinger, in the chair. Dr. J. T. Campbell exhibited a case of laryngeal stenosis.

DISCUSSION.

Dr. E. Fletcher Ingals:—A cursory examination of the case leads me to believe that it is one of tuberculosis. The uniformity of the swelling on both sides militates against malignancy. The fact that iodids did not improve the patient eliminates syphilis and the fact that the iodids made the patient feel worse points toward tuberculosis. Eliminating the history given, I think every one would consider this a case of tuberculosis. The fact that no tubercle bacilli have been found would not militate against that diagnosis, because very often we fail to find bacilli in laryngeal tuberculosis.

Dr. O. T. Freer:—In my opinion, the anatomic conditions in Dr. Campbell's case indicate perichondritis of the ericoid cartilage, involving both its posterior and anterior portions. The smooth, edematous enlargement of the posterior wall of the larynx, bulging into the laryngo-pharynx, and the symmetrical subglottic swellings that meet in the center below the cords are typical of this affection. On one side the inflammatory process has caused a fixation of the cricoarytenoid joint, while the other is still movable. Chronic perichondritis of the ericoid cartilage has many causes and, as Dr. Ingals suggests, it may be of tubercular origin in this instance. I recall two cases from my experience which were traumatic. In the first the disease followed a laryngotomy performed by me for the removal of a sarcoma of the cord and, until I lost sight of the patient, the condition created a total closure of the laryngeal lumen. In the second case the perichondritis was maintained by the prolonged wearing of a tracheotomy tube, which had been inserted too high after division of the ericoid cartilage in front, the larynx being completely filled by the swelling in this instance.

As to the cause of the condition in Dr. Campbell's patient, it seems to me that it can not be determined without further observation of the case.

Dr. A. W. Baer:—I would like to ask Dr. Campbell whether he has tried the interrupted galvanic current.

Dr. Campbell:—No; I have not.

Dr. Baer:—I am sure that nothing would give the patient more relief and better results in the case than electricity.

Dr. George E. Shambaugh:—I saw this patient a few days ago, and the findings described by Dr. Campbell agree with those I found. I think that an intralaryngeal incision might be of some benefit to the patient.

Dr. Holinger:—I do not believe that this is a case of malignant growth, because there is an absence of swelling in the glands of the neck. I agree with Dr. Ingals that it is tubercular and suggest ignipuncture. The procedure is not painful if the area is well cocaineized, and exceedingly valuable.

Dr. J. T. Campbell (closing the discussion):—These things have all been considered. Dr. Hardie and Dr. Morgenthau saw the man with me and we were unable to make a positive diagnosis. I think that trypsin has done much good

in this case. This man has gained forty-one pounds in weight, and this gain agrees with the results usually obtained by the use of trypsin. The man I showed here a year ago has since died, and carcinomatous involvement of the base of the tongue and the glands in the neck was found.

Dr. A. H. Andrews read a paper on "Some Points in the Surgery of the Sphenoid Sinus."

DISCUSSION.

Dr. F. E. Brawley:—I believe that the curvature Dr. Andrews gives his probe is a real advance in the diagnosis of diseases of the sphenoid sinus. I think that the Doctor's objection to removing at least a portion of the middle turbinal may be questioned, because the original sphenoid disease depends to a great extent on stenosis in this region. There are hypertrophies of the middle turbinal which close the channel in the nose, thus preventing proper aeration and reducing the vitality of the tissues. There is no objection to removing at least the posterior half or third of the middle turbinal, so that the ostium can be reached directly. I have used this probe in two cases. I was successful in one, and unsuccessful in the other. I had to make my probe myself, however, and that may account for the lack of success in the one case.

Dr. Andrews (closing the discussion):—I am not opposed to doing anything necessary for the cure of these cases, no matter how radical it may seem, but I do not approve of the removal of the middle turbinal on suspicion in every case where the sinus should be explored. The exploration of this sinus is so comparatively simple that I feel I have sadly neglected a great many patients whom I have treated for what they called "postnasal catarrh."

Dr. O. J. Stein read a paper on "Severe Primary Hemorrhage After Removal of the Fancial Tonsil."

DISCUSSION.

Dr. E. Pynchon:—I have on several occasions noticed that if a tonsil operation is done during the menstrual period there is more soreness than at other times, so I advise against the operation at such times. Dr. Stein did not mention the application of a strong solution of nitrate of silver, 25 per cent. In those cases where there is oozing from the surface, nothing is more efficient.

Dr. H. Stolte, of Milwaukee:—During the past year I have had much to do with hemorrhage from the tonsil. During that time I attended many Catholic Sisters who, I believe, because of their sedentary life, have tissues poor in vitality and blood vessels with insufficient contractile powers. I had so many cases of hemorrhage that I was afraid to operate any more in these cases. The first remedy to check the bleeding I use is a dioxogen gargle in ice water. If the bleeding does not stop then, I arm an applicator with a pledget of cotton, dip this in pure dioxogen and then press the instrument with force into the tonsil pocket, holding it there for two minutes. In about 90 per cent. of all cases of severe hemorrhage, the hemorrhage stopped. If there is any cozing, I apply a strong nitrate of silver solution, using a moment, where the bleeding surface is dry, instantaneously after having removed the compressing cotton pledget. If both these remedies fail, I suture the arch, especially when there is arterial bleeding from the upper part. I use Yankauer's needles, and the suture is quickly made. The reaction is not great, there is only a little edema, and the bleeding is checked absolutely. In one case I made use of Dr. Pynchon's method of cautery dissection. It was more painful than a cutting operation, but there was no hemorrhage. In suitable cases I am going to resort now to the cautery method.

Dr. O. T. Freer:—Among local measures for the control of hemorrhage after tonsillotomy I have used the Mikulicz tonsil clamp with varying results. In some cases, presumably where the bleeding vessels were in the bottom of the excavation left by the tonsil excision, it promptly controlled the hemorrhage. In other cases the bleeding continued, while the clamp was in place, and in others it returned as soon as the clamp was removed, so that it had to be worn for many hours. I have never seen injury from the Mikulicz clamp.

The advice is often given, under the supposition that the hemorrhage comes

from visibly spurting vessels, to stop the bleeding by seizing them with long artery forceps. In practice I have had no success with this procedure, for I have not been able to see definite jets of blood in the tonsillar wound, indicating the vessels to be seized. While such jets may have existed underneath the fluid and clotted blood which filled the niche from which the tonsil had been excised, the constant flow of blood hid them from view, so that instead of accurately grasping the bleeding points with the forceps, as in a wound upon the surface of the body, I blindly tried to seize them in the bottom of a well of blood, the proceeding being made more difficult by the retching of the patient. I not only hurt him a great deal, but aggravated the bleeding and inflicted injury which led to subsequent inflammation.

Of late, as an aid to local measures for the control of tonsillar hemorrhage, I have come to rely a good deal on general ones which withdraw the blood from the throat into other parts of the body or reduce the general blood pressure. The first of these general measures is the taking of deep inspirations by the patient while he stands. The upright position favors syncope, hence a lowering of the blood pressure, and the deep inhalations suck blood into the thorax as well as air, thus withdrawing it from the wounds in the throat and giving open vessels a chance to close. In two cases of tonsillar hemorrhage I have seen the bleeding checked by this simple measure alone.

The second general measure is the production of emesis. This is a well-known remedy for controlling pulmonary hemorrhage and acts by lowering the blood pressure by weakening the force of the heart. Emesis is best induced by a hypodermic injection of one-tenth of a grain of apomorphin. I have repeatedly seen tonsillar hemorrhage cease spontaneously when the patient vomited on account of blood he had swallowed.

The third general measure, to be used in cases of severe tonsillar hemorrhage, is the ligation of the extremities in order to confine the blood in them and to withdraw it from the general circulation.

I suggest a combination of the general measures suggested with local ones, instead of the reliance on the latter only, which now seems to be the practice. Local applications are apt to be employed in rotation until the last one used, when the bleeding stops spontaneously because of approaching syncope due to the loss of blood, for the time being obtains the credit of being a most effective remedy for stopping tonsillar hemorrhage until used in the beginning of the next case it proves useless.

Dr. J. C. Beck:—The fact that during menstruation bleeding occurs more often and more profusely is so well known in general surgery that the surgeon will not operate, except in emergency cases, during this period. But there are other conditions that favor hemorrhage, such as cholemia, or, during cholelithiasis, where the blood is changed. Surgeons nowadays always examine into the coagulability of the blood. In a recent issue of the *Johns Hopkins Bulletin*, Williams and Shedon described a means for estimating the coagulability of the blood which is applicable in all cases. The method is very simple, and I have tried it in a number of instances, with good results. At the Presbyterian Hospital much reliance is placed on this test, and it is carried out before every operative procedure. I have found that in most of my cases the coagulability of the blood is normal. I have not had a severe hemorrhage in a single case where the method was employed. If the coagulability is lessened, we will not operate, but administer a number of doses of calcium chlorid so as to increase the coagulability of the blood. The patient will also be denied foods which increase the tendency to hemorrhage.

I have had hemorrhages and I always rely on the arterial forceps. One can see where most of the bleeding comes from, and one need only grasp the region of the tonsil and not the vessel to check the bleeding. The anterior pillar usually is the one to be grasped. The bleeding is checked in a few minutes. I consider the Mikulicz clamp an instrument of last resort. I have had marked infiltra-

tion follow its use, and considerable difficulty in swallowing and in the use of the voice.

Dr. G. P. Head:—I agree with Dr. Beck in regard to the use of the artery forceps. If it is an arterial hemorrhage, you can get perfect control at once by using a long artery forceps instead of waiting for clotting to take place. I want to call attention again to a general measure which I used successfully in the worst case of hemorrhage I ever had, and that is the hypodermic injection of veratrum viride. The hemorrhage ceased immediately and I could not attribute the result to anything except the veratrum.

Dr. H. M. Thomas:—I want to ask Dr. Stein whether he has tried ferropyrin for the control of primary hemorrhage after tonsillotomy.

Dr. Stein:—I have not.

Dr. Thomas:—It has been my custom for some time in cases of primary hemorrhage after tonsillotomy to use ferropyrin. The preparation consists of equal parts of chlorid of iron and antipyrin. It is a most admirable styptic, when applied in the dry form, on a pledget of cotton.

Dr. J. G. Wilson:—Believing that the blood supply of the tonsil is definitely located, I see no reason why artery forceps can not be applied effectively to check hemorrhage. In discussing hemorrhage from the tonsil, two things must be considered: first, the question of hemorrhage from the pillars of the fauces and plica triangularis, and, secondly, that from the tonsillar sinus. The exponents of the enucleation method necessarily cut very deeply and so easily pass through the fibrous sheath of the tonsil and injure the constrictor muscle. Thus they run great risk of severing the larger branches of the tonsillar artery. The location of the larger branches of the tonsillar artery is perfectly definite; they come from the main trunk at the middle of the tonsil, one branch passes upward and the other downward toward the poles of the tonsil. It is, therefore, possible with artery forceps to catch the tissue lying in this median area and so to arrest hemorrhage after the removal of the tonsil, be it a sprouting artery or a general oozing. The blood supply of the anterior pillar and plica triangularis comes chiefly from the lingual; that of the posterior pillar comes from the descending pharyngeal. With this knowledge it is not difficult to apply forceps in such a way as to arrest hemorrhage in these areas.

Dr. H. Gradle:—It has been my good fortune not to have seen any severe hemorrhages after tonsillotomy for a considerable time. I may perhaps attribute this to my plan of not removing the lower part of the tonsil, in which there are no crypts. Observation of patients after partial tonsillotomy has shown me that they do not seem to suffer any disadvantage from leaving this lower remnant, and since following that plan I have not had an alarming hemorrhage.

Another styptic not mentioned which I have used very much in hemorrhage, especially from the inferior turbinal, is a mixture of dry tannin and a strong antipyrin solution. It is about the most rapid acting of the non-caustic astringents with which I am familiar.

Dr. Stein (closing the discussion):—It is remarkable how long we can go without having a case of severe hemorrhage. I never had one as severe as this in the seventeen years I have done this work. My report was intended mainly to emphasize the importance of inquiring into this one causative factor, menstruation. We are all interested in hemorrhages, and we all have our favorite remedies. They are all good. I used nitrate of silver solution, in 33 per cent. strength, in this case, but without result. I am fond of dioxogen or peroxid of hydrogen, and I use it and usually it is sufficiently styptic to stop an ordinary hemorrhage. I also employ deep breathing through the mouth or nose, if I am doing an adenectomy, although I never have my patients stand. I think there is considerable value in this method. As to the question of demonstrating the coagulability of the blood, I think it is of great value, but I doubt if many of us employ this test, particularly before operations on the tonsil. I do believe, however, that it would be a good plan to do so.

I am reminded by the discussion of a few cases reported by Moritz Schmidt, who speaks of severe prolonged hemorrhage following operations about the throat in patients who wore a tight collar band. Loosening the band immediately checked the hemorrhage. I demonstrated that once to my entire satisfaction.

As far as applying sutures and forceps to the bleeding point or particularly to the anterior pillar is concerned, I have often spoken of the use of the tenaculum, passing the instrument through the anterior and posterior pillars, giving it one twist, and holding it on the side of the mouth. That will usually check an ordinary hemorrhage. I did not have a tenaculum handy at the time when the bleeding occurred in the case reported; therefore, I used the forceps.

Dr. O. T. Freer read a paper on "The Use of Electrolysis for the Destruction of Dilated Veins of the External Nose and Septum."

DILATED VEINLETS UPON THE EXTERNAL NOSE AND SEPTUM;
THEIR PERMANENT CLOSURE WITH THE POSITIVE
GALVANIC NEEDLE.

OTTO T. FREER, M.D., CHICAGO.

The electrolytic destruction of dilated and tortuous veinlets upon the external nose, because of the blemish they create, and of thin-walled little veins upon the anterior part of the septum, because of the repeated nosebleeds they give rise to, has proven a useful procedure to me and one which has seemed worthy of a more detailed description than my brief mention of it in a previous article in 1906.¹ Some years ago I gave up the attempt to obliterate disfiguring veins in the skin of the external nose, because, misled by the method in common use among dermatologists, I used a needle connected to the strongly caustic negative pole. In spite of the more destructive effect of this pole as compared to the positive one, it failed to permanently close the veinlets needled, because the clot formed in the vessel at the negative or alkaline pole is soft and friable, so that it dissolves away in a few days with a restoration of the circulation in the vessel. In addition, the needle, when connected to the negative pole, with even so slight a current as one or two milliamperes, created little sloughs in the skin that led to the formation of disfiguring dry scabs which took some weeks to separate, and left red spots for some time.

The firm clot produced at the positive pole of the galvanic current in the electrolytic clotting of aortic aneurysm led me to connect the needle to this pole in the treatment of ectatic veinlets upon the nose, and their obliteration has so far in the cases seen by me been lasting, my first patient having been needled three years ago with no reopening of the vessels closed. When the needle is connected to the positive pole, no slough is produced where it enters the skin, as the positive pole is only slightly caustic and does not destroy the cutis, even when the current strength employed is beyond what is required to close the vessel operated upon, so that five milliamperes may be used without bad effect unless the electrical action be unduly prolonged. Instead of the deep adherent scabs that follow the use of the needle when it is negative, when positive it at the most produces slightly attached minute ones that drop off in a few days.

The manner of operating is as follows: The current employed is the constant galvanic one, derived either from a battery or from a wall plate which reduces the street current. A rheostat and milliamperé meter are necessary accessories. The needle used is exceedingly fine and is of iridoplatinum, as one of steel would be quickly destroyed by the acids of the positive pole and would stain the skin black. This needle is clamped in a holder made for the purpose and in common use. The needle is connected to the positive cord of the battery or wall plate, while the negative cord is inserted in a large, flat sponge electrode placed in the patient's lap.

Where the patient is unduly sensitive to the sting of the needle when the current is turned on, he is directed to close the circuit gradually by placing his

1. Chairman's address, Boston Meeting of the American Medical Association, Section on Laryngology, 1906.

hand gently upon the sponge after the needle is inserted into the vessel. More courageous patients are told to keep the hand permanently upon the sponge, the introduction of the needle closing the circuit under these conditions. This method is more painful than the first, but permits very rapid work.

The current strength used is from two to five milliampères, according to the fortitude of the individual treated. The weaker the current the longer the time required to close the lumen of the vessel. The electrolytic action may be increased by pressing the hand more firmly against the sponge or diminished by making its contact lighter, the patient thus controlling the amount of electricity he is willing to endure, the hand acting as a rheostat under his guidance.

The needle point is inserted into the peripheral ends of the branches of the veinlet first, each being punctured at close intervals toward the vessel's trunk until this is reached, when it is also followed up along its whole length to its proximal end. The vessel is seen to blanch as soon as the needle is introduced and the current closed, while bubbles of gas may be observed to travel along its empty lumen. I have never known these gas bubbles to do harm, although they enter the circulation. If the needle be pulled out too soon blood will flow, but if the current has acted long enough a white, tortuous line will be seen in the place of the veinlet attacked or in larger vessels a blackish, blue streak will mark the clot in it. Where a current of five milliampères is used, about five seconds for each puncture will suffice to close even a larger veinlet of about knitting needle size, for the smaller vessels from one to two seconds are sufficient. The reason for puncturing the vein along its course and for not being satisfied with merely closing its lumen at one point is the need of excluding a reopening of the vessel by collateral channels and of being certain of a destruction of its tunica intima.

In some cases all of the dilated veins upon the external nose may be closed at the first sitting, the patient's appearance showing an immediate improvement which is very gratifying to him. No sloughs mark the site of the punctures, as where the needle is connected to the negative pole, their location being merely indicated by an exuding drop of serum. No external application is needed after the operation. The coarser the vessels the easier is it to obliterate all of them at the same time, for larger veins remain visible in spite of the blush of the skin produced by the irritation of the treatment. Finer ones soon become hidden by the reddening of the skin, and thus a second or third sitting may be required before all of them have been found and punctured. Diffuse spots of redness, caused by a network of very fine vessels, are especially hard to eradicate. The work is very trying to the eyes and is best done in daylight and with a pair of strong convex glasses.

I have not had the opportunity to try the effect of the positive needle upon the vascular protuberances of rhinophyma or acne rosacea, my experience being limited to dilated vessels coursing over noses not otherwise disfigured. It seems to me, however, that the multiple punctures of such outgrowths with the needle might lead to their absorption by destroying the venous plexuses within them.

In addition to the relief of disfigurement by destroying ectatic vessels upon the external nose, I have used positive electrolysis for the eradication of the little veins with friable walls which are situated upon the foremost part of the septum and which are so readily torn open by the finger nail or handkerchief with resulting nosebleed. Recurrent attacks of epistaxis produced in this manner may become a serious matter and give the patient a great deal of anxiety. In my experience spontaneous nosebleed comes oftener from the vessels in this location upon the septum than from the other regions of the nose.

The usual method of destroying these veins is by means of the galvanocautery. The objection to this is the irritation and scabbing following this procedure until the destroyed epidermis has been replaced. The positive needle creates no slough in the mucous membrane, no irritation or scabbing follows its use, while the vessel may be eradicated completely nevertheless.

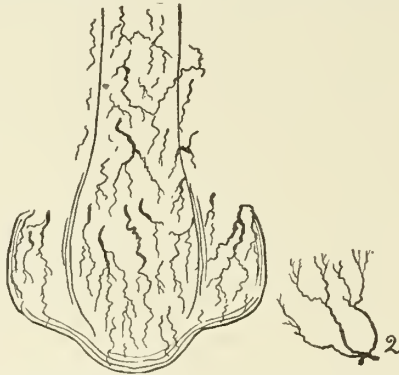
I append two sketches from life. One of them shows tortuous veins of the external nose and the other veinlets coursing down the anterior part of the septum to the nasal floor. In both of these cases complete and permanent closure of the vessels was produced.

The treatment can, of course, not prevent a later dilatation of other vessels in a normal state at the time of the operation, and the patient should be warned of this. To avoid a reopening of the closed vessels it is also necessary to be very thorough in the needling and to use a current of sufficient strength to destroy the vessel wall about the needle.

DISCUSSION.

Dr. H. Stolte, of Milwaukee:—I want to ask Dr. Freer whether he has used positive electrolysis on red noses due not to dilated blood vessels, but to a general redness from not visible capillaries, and whether he has used positive electrolysis on dilated arteries of the nose, and whether a hemorrhage would not result as soon as the artery is punctured.

Dr. O. T. Freer (closing the discussion):—I have not used the method for simple redness of the nose nor have I had an opportunity to try the needle in the case of small dilated arteries, but the very minute puncture made could not



Numerous dilated veins on external nose, all of which were caused to disappear by positive electrolysis in two sittings.

2. Dilated veinlets at front of bottom of septum. Obliterated by electrolysis.

produce hemorrhage of any consequence from them and the electric current would speedily stop any bleeding.

Dr. J. C. Beek presented a specimen taken from a patient who died from pneumonia two and a half years after a submucous resection had been done. The specimen shows that there is no regeneration in the septum of either bone or cartilage, but merely a formation of dense fibrous tissue with complete restoration of the mucous membrane. The patient was 35 years of age when operated on.

Regular Meeting, held Nov. 12, 1907.

A regular meeting of the society was held Nov. 12, 1907, with the President, Dr. J. Holinger, in the chair.

TUMOR OF NECK.

Dr. Fisk reported the case of a man who complained of severe pain in the throat and inability to open the jaws, with hoarseness. There was a hard swelling under the angle of the jaw on the left side. The mass was incised, but no pus was found. When the patient was referred to the ear clinic, pus was discharging from the ear, and he could open his jaws about one-fourth of an inch. There was a small, soft, spongy body in the external canal, covered with skin, and a probe could be passed down through the opening in the swelling down into the neck. Pus could be forced out through the ear on pressure. The soft palate in the region of the left faucial tonsil showed evidences of a peritonsillar abscess.

The question was whether this was a peritonsillar abscess which had ruptured into the neck and then discharged through the external ear, or an abscess in the parotid region. No examination of the pus was made.

Dr. Norval H. Pierce:—I think that the microscope will clear up the diagnosis. Tuberculosis and syphilis can be excluded, although it is possible that tonsillar disease has been running and this is an exacerbation of a chronic condition, but I am inclined to think that it is actinomycosis, although the course is rather rapid.

Dr. J. Holinger:—The case looks like one of angina Ludovici which started as a peritonsillar abscess and ruptured into the neck.

HEALED PRIMARY NASAL TUBERCULOSIS.

JOSEPH BECK, M.D.

DISCUSSION ON DR. BECK'S PAPER.

Dr. W. L. Ballenger:—This patient came under my observation thirteen years ago and remained under my care for six years. Previous to the time I saw her she was under the observation of Dr. Max Thorner for four years. She has a brother with the identical lesion in the nose. She was very well, unusually so, and no evidence of tuberculosis of the lungs could be found by Dr. R. H. Babcock and others, so that it undoubtedly was a case of primary nasal tuberculosis. A curious feature of the case was that the patient would cure herself, that is, get well without treatment at certain times of the year, leaving a smooth scar in the nose. In the winter the trouble would recur, so that in all probability the lady is now passing through one of her favorable periods, and I believe that a year hence Dr. Beck will again report her as cured. He has done it before and doubtless will do it again.

The membrane in the nose is not healthy now. It is swollen and edematous, especially on the septum at the point of perforation. I believe that the disease will again recur, but it has made considerable progress since I saw the patient last, when she had no lesion, except on the left side of the septum, whereas now the anterior portion of the middle turbinate has been diseased and removed. The case certainly is an interesting one, because of the automatic cure during the warm months.

Dr. C. M. Robertson:—How much mercury and how much potassium iodid has the patient had?

Dr. Beck:—I have given her inunctions for eleven weeks, followed by potassium iodid, as high as 340 drops a day.

Dr. Ballenger:—I want to say that Dr. Thorner made the same diagnosis as Dr. Beck and I did.

Dr. Max Reichmann:—I would suggest that Dr. Beck try the Roentgen ray. The nasal cavities can be reached directly by the rays and tubercle bacilli are very apt to undergo certain changes under the influence of the rays. I think that a trial would well be worth while.

Dr. J. Holinger:—The case I showed four years ago ran the same course as Dr. Beck's case. Cases of tuberculosis of the nose are most tedious, and always have a tendency to recur. One point that struck me in this case is the extreme scar retraction in the left nostril, a common appearance in the later stages of the disease. The wings of the nose are drawn up and shriveled, and the entrance to the nose is smaller than normal.

Dr. Beck:—I gave the history of this case as I received it. The patient has been suffering for twenty years, although she has consulted physicians for only fifteen years. As long as she was under treatment there was always a crust or scale present. She is free from that scale now. There has always been a red, elevated membrane with small, pin-point granulations. I believe that the patient is well now, although I am not certain of that. I will report further on the case later. In regard to the Roentgen ray, she has had eight weeks of treatment and also with radium and high frequency current.

RADIOGRAPHY IN THE NOSE, THROAT AND EAR.

Dr. Joseph C. Beck exhibited plates to show the value of the Roentgen ray in the diagnosis of diseases of the nose, throat and ear and as an aid in the treatment, and demonstrated the methods employed in making these radiographs.

DISCUSSION.

Dr. W. L. Ballenger:—Dr. Reichmann has taken more than fifty plates for me during the past year, and I have had plates made by other radiographers. I have two plates showing an absence of the frontal sinuses, and some other interesting and curious conditions. In three cases the anterior ethmoidal cells were found absent over the orbit. After removing the ethmoidal labyrinth I could pass a probe across the orbit, two-fifths of the way across. So that removal of the ethmoidal labyrinth is not complete. Sometimes the cells extend beyond the reach of surgical instruments. I have a case under observation now in which the posterior ethmoidal cells pass along the side of the sphenoid for one and one-half inches, and I saw another specimen where the cells passed not only along the side of the sphenoid but behind it. In such cases we must resort to prolonged treatment to establish drainage from the remote cells.

Another case of bilateral frontal sinusitis was interesting. I found the mucous membrane on one side entirely gone. The *x*-ray plate showed on that side no such great density as on the opposite side. Dr. Coakley said that he was not sure what made the cloudiness; whether infiltration of the mucous membrane, pus or denuded bone.

The plates Dr. Beck shows are very beautiful and instructive and of great value in diagnosis, but it is not impossible to make a diagnosis without the *x*-ray, but we can make it more absolutely with the plate. The plate also shows the area of the field of operation, and it gives us an opportunity to plan the operation to better advantage and shows how much deformity we may expect to follow and what operation must be chosen. I have had only one case in which I did the Killian operation and in which there was marked deformity. The cells were deep and large. The angle at which the rays are directed through the skull is of importance, and I am not sure that my plates have been taken at the correct angle.

Dr. R. H. Good:—I have used this method in cases of mastoiditis and antral empyema and found it to corroborate the clinical findings. In one case of mastoiditis I took a picture at one angle and then at another, and by comparing the two plates I got positive evidence of the disease. By placing the plate horizontally it makes a good picture of the antrum better than of the frontal sinus. I have taken some pictures below the occiput and it makes a good picture of the antri but a poor one of the frontal sinuses. I believe that these *x*-ray pictures ought to be taken in every case. I have yet to see a case where the sinuses are filled with pus that does not show a shadow.

Dr. Norval H. Pierce:—These two plates will demonstrate that the rays must pass at a certain angle to show the frontal sinuses. (Exhibited two *x*-ray plates.)

Dr. Max Reichmann:—I wish to congratulate Dr. Beck on the results he has obtained. Albers-Schoenberg showed that the frontal sinuses must be taken in the manner described by Dr. Beck and all plates I have taken were taken in that manner, by directing the main or axial ray through the occiput. I took the first pictures with the patient in the horizontal position, but the remainder were taken with the patient lying on an incline. It is essential to use the compression apparatus because the patient can not lie perfectly quiet for two minutes. Even the breathing will move the head. I have endeavored lately to make the sinus pictures in stereoscopic views. The literature on the subject is very meager; in fact only two papers have been published, and one of these was by Wassermann.

As far as the sphenoid and ethmoid sinuses are concerned, all workers agree that it is impossible to make the diagnosis except when the tube is turned in such a way that only one sinus is taken at a time. This is possible by making an oblique exposure, but, unfortunately, we get disfigurement and the pictures are

not good for diagnosis. The lateral view must show the mastoid cells, the auricle and the antrum Highmore. Another good method, although difficult for the patient to bear, is to introduce sounds into the cavities which are to be skia-graphed. I have had a few cases of suppuration of the frontal sinuses where the probe was introduced and it showed the conditions beautifully.

Dr. G. P. Marquis:—Dr. Beck is to be congratulated on his work, but I agree with Dr. Ballenger that in the great majority of cases we can make the diagnosis by simpler methods. I saw Killian do seven operations and at no time did he use the radiograph for diagnosis. The *x*-ray plate was used not so much from a diagnostic standpoint as an aid in the operation. For this purpose the radiograph is an excellent thing.

Dr. Geo. E. Shambaugh:—I want to emphasize that we do not make a positive diagnosis of accessory sinus disease from *x*-ray plates alone. This diagnosis must finally depend in most cases on careful intranasal examination. The great benefit of the plates is that they give us an accurate idea in many cases as to the outlines of the sinuses. This is especially true in case of the frontal sinus.

Dr. S. Friedberg:—Dr. Reichmann spoke of putting a probe into the sinus to be rayed. I find that a method of considerable value, especially in suitable cases.

Dr. Ballenger:—Because we find evidence of disease in the frontal sinuses is not an indication for doing a radical operation. I have treated such cases intranasally with much satisfaction.

Dr. Beck:—I do not make my diagnosis by radiographic plates, but I think it is an aid in diagnosis and we ought to use it, and one reason why we do not make greater use of the method is because it has been unsatisfactory. You need not fear any ill results from this work. Anatomically it certainly is of great value to prove the existence of the sinuses. Dr. Good's statement does not conform to accepted methods of making radiographs. I would like to see his plates because it has been my experience that plates are no good when taken at an angle. I have looked over the literature on the subject. Albers-Schoenberg makes no particular mention of the line of the ray. Goodman, Killian's radiographer, discovered this particular point by accident. Stereoscopic views are beautiful and I am working on that now. We can demonstrate the depths of the sinuses and without any side views, except to tell the depth of the posterior frontal diameter. As for the use of sounds to demonstrate the mastoid, I have reserved that part for another paper. I find that sounds are not of much value in diagnosis.

A CASE OF LABYRINTHINE DEAFNESS WITH "TONE ISLAND."

GEORGE E. SHAMBAUGH, M.D., CHICAGO.

Mr. Wheeler, 25 years old, a student at the University of Chicago. There is no history of deafness in either his father's or mother's family obtainable. Patient has one brother a few years older than himself, who for a number of years has suffered from ear trouble similar to his own. An examination of this man's hearing gave the reactions characteristic of partial loss of hearing due to involvement of the nerve apparatus. The patient had no serious illness as a child excepting measles and perhaps pertussis. He has had no previous ear trouble. He first began to detect defective hearing while he was attending the high school at the age of 19. At this time he did not suffer from tinnitus aurium. In July and August, 1906, he had typhoid fever. About two months after getting out of bed he began to detect tinnitus aurium in the right ear. This has remained constant ever since. Later tinnitus also began to be noticed in the left ear, where it has appeared to be intermittent. The character of the tinnitus in both ears is that of a high-pitched cricket-like sound. There has been no dizziness nor other symptoms referable to the ears.

The membrana tympani in both ears is normal. The functional examination gives the following: Whispered voice, right ear "82" heard at two inches from ear, "66" not heard at all. Left ear, "18" heard at four inches from ear, "66" is not heard. In the Weber test the "A" fork is indistinctly lateralized in the left

ear, but appears to be heard in both ears. In the Schwabach test the duration of bone conduction for the "A" fork is normal. The Rin e reaction for the " " fork is positive in both ears.

In testing the several parts of the scale by means of the Bezold-Edelmann continuous series of tuning-forks the following conditions were found: In the right ear the patient heard all tones of the scale up to f^3 . From this tone to the upper limit there is complete loss of hearing. In the left ear he hears all tones from the lowest fork, 16 d. v. per second up to f^4 . From f^4 to a^4 there is in this ear complete defect in hearing. From a^4 to e^5 he hears all the tones. Above e^5 to the upper limit there is again a complete defect in the hearing. We have in the left ear from a^4 to e^5 an example of a so-called "island of hearing," or "tone island," also an example of a circumscribed defect in the midst of the scale from f^4 to a^4 .

Circumscribed defects in the scale are by no means uncommon. A loss of hearing for the tones at the lower end of the scale is associated with almost every case of middle ear disease, and is caused apparently by a more or less rigidity of the sound conducting mechanism that is of the membrana tympani, and the chain of ossicles, but especially upon a fixation in the oval window of the stapes, which must be looked upon as the key to the sound conducting mechanism.

Defects circumscribed to the upper end of the scale are also quite common. Such defects as well as circumscribed defects in the middle of the scale and the existence of islands of hearing as found in the left ear of this case must be looked upon as the result of disease located in the cochlea. The possibility that such circumscribed defects in the scale are due to disease in the brain centers of the cortex seems highly improbable, the reason for which we need not discuss here.

The great interest which a case such as this possesses is the light which it throws on the problem of tone perception. The faculty which the organ of hearing possesses of recognizing the correct pitch of tones and at the same time of analyzing into their several elements the complex tones which impinge on the ear at one time led Helmholtz to construct his resonator theory of tone perception to explain these phenomena. One of the fundamental hypotheses of the Helmholtz theory is that groups of end organs in the several parts of the cochlea have to do each with the perception of particular tones, the lower tones being taken up by the hair cells located near the apex of the cochlea, the higher tones by those in the basal coil. The second fundamental hypothesis of his theory is that there exists in the cochlea a mechanism which acts as physical resonator, responding in one part to tones of a certain pitch, and in another part to tones of a different pitch. It is the mechanical action of these physical resonators responding to tones of different pitch in the several parts of the cochlear tube that brings stimulation to this or that group of hair cells and leads to the perception of this or that particular tone.

Objections to the Helmholtz theory have arisen and since his time a number of new theories have been suggested to explain the interesting phenomena of hearing. However, with the knowledge which we have of the various phenomena associated with tone perception, physiologists are for the most part convinced that we can hardly escape accepting the theory that a resonator in some form exists in the cochlea. On the other hand the clinical phenomenon presented by these cases where "tone islands" are found is one of the strongest proofs of the hypothesis that perception for the several tones takes place in separate and distinct parts of the cochlear tube.

I believe I have been able to demonstrate that the particular structure in the cochlea which Helmholtz fixed upon as the mechanical resonator, viz., the radiating fibers of the basilar membrane, is not the vibrating structure which it was supposed to be by Helmholtz. This discovery does not, however, overthrow the fundamental principles of the resonator theory as laid down by Helmholtz. I have attempted to show that the membrana tectoria and not the basilar membrane is the logical structure for stimulating the hair cells. This is the structure which apparently fills the r le of physical resonator by responding in its various parts to tones of different pitch. I have shown that the tectorial membrane varies enormously in size from one end of the cochlea to the other. This variation in size

together with its fibrillar structure are characteristics which suggest the probable physical basis which renders it possible for this structure to act the part of physical resonator by responding in one part to impulses of a certain pitch and in another part to impulses of a different pitch.¹

The human ear is capable of hearing tones at least as low as 16 d. v. per second, and tones as high as 55,000 d. v. per second. With the conception that the perception of the lowest tones takes place at the apex of the cochlea and that the tones higher and higher in the scale are taken up successively by groups of hair cells located nearer and nearer the base of the cochlea we can readily account for the phenomena as presented by this case, where we find the circumscribed preservation of hearing for a certain part of the scale in the midst of a more or less extensive complete destruction of hearing for neighboring tones. We have simply to imagine that we have spread out from one end of the cochlea to the other a mechanism not unlike a pianoforte, each particular part responding to a tone of a particular pitch. A disease process invading the cochlea, such as the formation of a blood clot, the invasion of pus, as in cerebrospinal meningitis or from an otitis media, or a nerve degeneration, may destroy the end organs over a certain part of the cochlea and leave the remainder untouched. The result would be exactly what we have in this case, the preservation of so-called "tone islands."

Just what the process is in this particular case that has invaded the cochlea we can only surmise. The fact that the process has been an insidious one and began before the age of 20, when taken with the fact that a brother has developed the same type of deafness coming on in exactly the same way, suggests the possibility that this may be due to the condition known as otosclerosis. The spongifying of the capsule involving the basal coil in both cases, but without extending to the footplate of the stapes.

DISCUSSION.

Dr. Norval H. Pierce:—It has been largely dwelt on that the so-called Bezold triad is essential to the diagnosis of otosclerosis, and in a recent paper I tried to bring out the point that in otosclerosis we have two factors working against each other as it affects the reaction of tuning forks. In one the bone conduction is increased and the low tone elevated, and this is due to a spongification and ankylosis about the foot plate of the stapes. But this is not always the case. Spongification of the labyrinthian capsule may take place at any part, and if there is no spongification and ankylosis of the stapes, we do not have lowering of the tone limit nor prolongation of bone conduction or negative Rinné, but have the same reaction as in nerve deafness; namely, decrease of bone conduction and a positive or shortened Rinné. So that these cases can be grouped under the head of otosclerosis in the absence of other diseases to account for the condition present.

Dr. J. Holinger:—The case as described here is given in the text-book of otology by Bezold. Siebenmann wrote those chapters and gives almost the same experience with the only difference that the patients were women and not men, two sisters who were treated for "hard hearing." One shows distinctly the symptoms of otosclerosis and the other of nerve deafness. This disease often affects sisters or brothers; then jumps a few generations and appears again. The principal muddle was caused when the word otosclerosis was coined. Siebenmann wanted to call it spongification, but the word otosclerosis was forced on him because it was in use before we knew the pathology of the disease. If the word spongification had been retained, then the location of the process would have been excluded, and then we would have had only this form; the spongifying outside of the oval window, and the other form, spongifying at the foot plate of the stirrup. But, no doubt, this is pathologically the same process and the location is a different one.

1. See *Am. Journal of Anatomy*, vol. vii, No. 2, August, 1907. A Restudy of the Minute Anatomy of Structures in the Cochlea with Conclusions Bearing on the Solution of the Problem of Tone Perception.

HENDERSON COUNTY.

The semi-annual meeting of the Henderson County Medical Society was held in the office of Dr. DuFour of Oquawka last Monday. The meeting was called to order by the President, I. F. Harter. The roll call found Drs. Eads, Graham, DuFour, Kauffman and Harter present. Dr. Graham, of Biggsville, read a very interesting paper on "Exophthalmic Goiter," and reported a case on which he had recently operated, and which is now on the road to recovery. Dr. Harter read a paper on "The Study and Treatment of Sick Children." The papers elicited a general discussion. Dr. DuFour presented an interesting case of skin grafting on a lady, who had recently sustained severe injuries from being burned. The following officers were elected for the ensuing year: President, Ralph Graham; Vice-President, W. G. DuFour; Secretary and Treasurer, C. E. Kaufman; Censor for three years, W. J. Emerson; Censor to fill vacancy caused by the removal of Dr. J. P. Riggs, A. E. Lauver; Delegate to meeting of State Society, W. G. DuFour; Alternate, I. F. Harter. I. F. Harter was elected a member of Medical Legal Committee.

JASPER COUNTY.

The Jasper County Medical Society met in G. A. R. hall, Newton, June 5. The question of revision of the medical fee list in the county came up for discussion. It was developed during the remarks of the members that our present fees are about the same as they were 25 years ago. The Society voted to invite the members of the Crawford County Medical Society to be our guests at our next regular meeting in July, when a banquet will be given them and a general good time indulged in. We now have a paid up membership of 15, out of a total of 25 physicians in the county.

LIVINGSTON COUNTY.

The Livingston County Medical Society met in the Elk Club rooms in Pontiac, May 7, with 25 members present. Nine new members were received into the society and a profitable meeting was held. Dr. L. R. Allen, of Forest, was elected president; Dr. C. R. Barr, of Dwight, vice-president; and Dr. John Ross, of Pontiac, secretary-treasurer. The treasurer reported a balance on hand of \$80.40. Dr. Barr, of Dwight, read a paper on Carbolic Acid. Dr. Middleton, of Pontiac, Surgical Treatment of Otitis Media. Dr. Shroeder, of Chicago, gave an illustrated stereopticon lecture on Color Photography, at which he had a large audience of doctors and people interested in the subject. His lecture was very pleasing and instructive. A luncheon was served in the chapel at the new St. James Hospital, where Dr. Baker delivered his annual address and a dozen doctors responded to short toasts. The society will hold its next semi-annual meeting in Dwight.

CHRONIC-DISCHARGING MIDDLE EAR DISEASE SURGICALLY TREATED.

A. B. MIDDLETON, M.D., PONTIAC, ILL.

This symptom complex because of its frequency, varieties and dangerous complications, forms one of the largest and most interesting chapters in modern otology. When the general practitioner becomes better informed and more careful in applying modern otologic therapeutics, carrying out earnestly and vigorously the proper treatment in all early, acute middle ear diseases, then it will be that we may expect a reduction in the number of chronic discharging middle ears with all their numerous and serious complications.

It is a sad fact for the poor sufferer with a discharging ear that there is such a strong superstition among the laity against giving any treatment that may check or stop a chronic discharge for fear it might break out anew somewhere else, causing still greater trouble, evidently thinking the best thing to do in a case of this kind is to wait and outgrow it. Thus patients will delay seeing a doctor until the trouble has caused great destruction to the membrani tympani,

a carious condition of the ossicles or perhaps gone far enough to cause intracranial complications.

One of our leading otologists says a man going around with a chronic discharging ear is in a greater danger of losing his life than if he had a stick of dynamite tied around his neck. A purulent inflammation of the middle ear may exist for years without giving any trouble to the patient, while at the same time he might be on the verge of a sudden serious condition. An ear of this kind is a human incubator ready to force at any time the growth of a germ which may be introduced by chance from without. If this same condition should exist in some remote part of the body where the danger is slight it would be slurred as a dangerous focus both by patient and doctor and no time would be lost in combating it. These ear cases are much more common than one might think. If you look back on your practice, I venture to say you can recall several that are now going around attending to business, etc., in this dangerous condition. This is a result most always of a neglected acute otitis media which has run a course say, of some six weeks, after which it may be safely called chronic.

These acute cases are caused by many different infections, as influenza, the exanthematous diseases, furuncles in external auditory meatus, streptococcus and staphylococcus infections; also, by forcible syringing, nasal douches, nose and throat affections, cholesteatoma, occupation, exposure, climate, mode of living; finally, any obstruction to Eustachian tube or proliferation of round cells in the mastoid cells.

Children develop these acute troubles much more easily than the adult owing to the comparative absence of the bony meatus in the young. The sequelæ met with are mastoiditis, lateral sinus thrombosis, labyrinthine suppuration, cerebral and cerebellar abscess and meningitis.

I will consider mastoiditis, as it is frequent and of supreme importance. This involves and causes loss of the epithelium and underlying structures of the mastoid cells and is the result of imperfect drainage which causes stagnation and absorption of infective material. Necrosis and caries are usually end processes. It is not limited to the mastoid cells alone but may involve a part or all of the temporal bone. When we take into consideration the pathology we find that the aditus ad antrum is very small and that a slight swelling closes this passageway between the antrum and the recessus epitympanicus, thus damming back into the antrum and mastoid cells pus and secretions which must be absorbed or form an abscess. The cells involved most commonly, however, are those in front of the antrum. It is also found that a pneumatic is affected more often than a diploetic mastoid. The caries in the attic most always involves the antrum, malleus, incus and sometimes a part if not all of the stapes. The symptoms are many and vary greatly and may decrease in their intensity until there is nothing but a chronic discharge.

There are three points of tenderness as a rule, one over the antrum, another over the emissary vein and a third point at the tip of the mastoid process. Swelling behind the ear may be early present or later after the pus has burrowed through the bone, followed the walls of the vein out into the soft tissues giving the skin a tense, smooth feel on palpation. Dizziness and deafness would indicate trouble extending into the labyrinth. Pulse and temperature are seldom affected unless in case of brain complication or a general meningitis.

Nystagmus, strabismus or a choked disc indicate serious brain involvement. Any sudden checking of the discharge in an ear not under treatment should cause alarm, as it may mean extension into the cranial cavity or the deep tissues of the neck, forming a Bezold's abscess. Sluggish pupils are some times present as well as a swelling of the inner posterior portion of the external auditory canal which is painful to touch. Oozing pus, from the roof of auditory canal at inner end is claimed by some to be the best and most positive guiding symptom. If a swelling of this nature is not due to a furuncle it is a fairly positive sign of mastoiditis.

We sometimes have a bulging of the membrana tympani along the posterior half, but this disappears as soon as the inflammation quiets in the antrum. All the acute symptoms may develop in a chronic case without a moment's warning. Cases that relapse from time to time are the most dangerous of all because during the interval they are not discharging; the pus is retained in the cells and in time will cause bone necrosis and may prove fatal in a few hours. If you find headache, vomiting, nausea, stiffness of the neck, contracted pupils, double vision, slow shallow pulse with stupor and coma coming on, surgical action is necessary to save your patient. Do not wait for help or to make elaborate preparations. If you do you will be almost certain to lose your patient.

To fail in diagnosing this complication is almost impossible, as there are but few distinctions from which to be made. The bulging of the internal superior portion of the external auditory meatus, points of tenderness, history of chronic discharging ear, sudden displacement of auricle, attic necrosis and additional minor symptoms make it comparatively easy.

The prognosis is favorable in acute cases with operation, but untreated they usually prove fatal. To wait for swelling, temperature and intracranial symptoms before resorting to an operation is very dangerous. Many a patient might be saved if properly treated in time.

The treatment for the acute cases is that of relieving pain with opiates and applications establishing drainage in the middle ear through the auditory meatus or the Eustachian tube. Use cold applications to the surroundings parts. Irrigate the ear every hour with hot antiseptic solutions. Absolute quiet in bed if possible. Don't let patient lie on back as the pus will gravitate through the aditus ad antrum into the mastoid antrum and cells. Clean out any nose or throat secretions that may be present. Put leeches over the tip of the mastoid process. Continue local treatment if there are no serious complications and the acute trouble quiets down, but if it does not recover after several weeks resort to surgical measures of a radical nature and remove all diseased tissue, so that the parts may fill with normal healthy granulations, and finally be covered with normal epidermis.

In the radical operation for the cure of this dangerous and dreaded complication do not expect to see pus gush out of the mastoid cells when you open into them because this only happens in distinct abscess cases. It is far better to operate too soon and err on the right side than to lose the patient by surgical neglect.

Prepare the patient for operation in the usual way, having him enter the hospital a day prior to operation, so that the bath, diet and bowels may be looked after, and the operative field properly eared for by the surgical nurse in the following manner: Around the ear for two and one-half inches have the hair shaved, the part scrubbed freely with green soap, including the internal auditory canal, flush and wash parts again with normal salt solution. Then use 1/1000 bi-chlorid, covering the part entirely with a wet bi-chlorid dressing to be left in place until the next day at the time of operation.

After the patient is under the anesthetic remove the dressing and repeat the local cleansing with the addition of alcohol flushings to the parts prior to beginning the operation, which is begun by making a primary incision down to the bone one centimeter below the tip of the mastoid process; continuing upward and around the auricle keeping $\frac{1}{4}$ -inch from the auricular attachment until your incision extends in front of the auricle. The periosteum is now elevated from the skull and posterior wall of external meatus. The sterno-cleido mastoid muscle attached to the lower end of the mastoid process, is clipped off with scissors until the finger can pass easily around the tip. The bleeding at this stage is quiet profuse but is checked as soon as the retractors are in place and tightened. The spine of Henle or the auditory spine is now located and gives the clue where to find the antrum, as the latter lies directly under it as a rule.

but we have nothing, however, to tell us how far below. We are now at the most dangerous part of the operation and this danger continues increasing until we find and enter the antrum. With a broad chisel, we chisel slowly down into mastoid process, leaving intact the posterior wall of the external auditory canal, keeping below the lower border of the zygomatic ridge. We chisel deeper and deeper keeping our eyes open for the lateral sinus, dura mater and brain. Finally when we get deep enough to enter the antrum, our bony excavation should be cone-shaped, the base upward and the apex in a place corresponding to an imaginary point below the place where the spine of Henle was situated. When we reach the antrum a probe is introduced to see if it passes into the attic; if it does and we have not destroyed anything below the antrum we are fairly safe and the most dangerous part of the operation is over, as the facial nerve and lateral semi-circular canal is internal to the antrum. The opening is enlarged, the malleus and incus removed with a probe, which makes the attic much larger, giving more room within which to work. A wedge-shaped piece of the external auditory canal is removed, the apex of which corresponds to the place of our entrance into the antrum. Do not forget that the facial nerve runs under this particular portion of bone and that the lower part must be trimmed away carefully. All diseased cells and cavities are smoothed with an electric burr and the whole cavity is made into one large, smooth one; clear out the atrium opening of the Eustachian tube with a small burr or curette so that drainage may be better by this route while the tube remains open. A pointed knife is now thrust through the auricle vertically from behind coming out opposite the tip of the tragus through the concha portion of the external auditory meatus. Cut downward nearly to the anti-tragus, then turn knife and extend incision up and about the same length in front of the anti-helix. Introduce the divulsers into the external auditory canal and allow them to come out of the opening caused by the destroyed membrana tympani. Two rectangular flaps are now made by carrying one incision from within outward to the verticle auricular incision. Remove a part of the cartilage from upper flap, stitch this flap to the soft parts above, pack the wound with gauze, close the skin flap back of the ear with Moshell sutures, pack the cavity and new external auditory canal with gauze. Pack the cavity loosely, but pack the auditory canal tightly to prevent contraction. Leave the dressing in place seven days if there is no evidence of infection. After this dress wound every day, being extremely careful about infection. In six weeks the patient should be sound and well, showing very little scarring.

MACON COUNTY.

The Decatur Medical Society met May 26, 1908. Dr. Clara A. Garber read a paper on The Elimination of Proteid Foods in Renal and Hepatic Disease. Dr. C. E. Woodward read a paper on Practical Urinalysis. Dr. C. M. Jaek reported a case of persistent hematuria where he found colon bacilli in the urine; he grew a pure culture of the bacilli and injected them into his patient with almost immediate cessation of hematuria. He counted his bacilli by comparing the emulsion with blood under the microscope a certain number of germs and a certain number of corpuseles.

MACOUPIN COUNTY.

The Macoupin County Medical Society held its quarterly meeting at Carlinville, April 28, 1908. The following officers were elected: President, J. P. Denby; Vice-President, C. J. C. Fisher; Secretary and Treasurer, H. A. Pattison; Delegate to State Convention, J. Palmer Matthews; Alternate, J. S. Collins. Dr. J. H. Riffey, Girard, read a paper on Pneumonia. Dr. H. A. Pattison, Beuld, read a paper on The Nostrum and Proprietary Medicine Problem from the Standpoint of a Country Doctor,* presenting also an exhibit of United States Pharmacopeia and National Formulary preparations, prepared by druggists of the country. Dr. F. A. Renner, Beuld, exhibited a fetal specimen of Craniorachis-

* For text of paper see page 61.

kasis. The following responded to the roll call: Drs. Collins, Denby, J. P. and J. Palmer Matthews, Davis, Corr, of Carlinville; Gross, English, Hobson, King, of Gillespie; Renner and Pattison, of Beuld; Simmons, Riffey, of Girard; Morgan, of Nilwood, and Link, of St. Louis.

MERCER COUNTY.

The Mercer County Medical Society met in annual session in the Court House in Aledo, Tuesday, May 5. Members present: Drs. M. G. Reynolds, B. R. Winbigler, G. H. Moore, J. D. McKelvey, L. L. McIntyre, J. W. Wallace, A. N. Mackey, V. A. McClannahan and Walter N. Boyer. The following officers were elected for the coming year: President, B. R. Winbigler, Seaton; Vice-President, G. H. Moore, Joy; Secretary, Walter N. Boyer, Aledo; Censors, A. N. Mackey; M. G. Reynolds and V. A. McClannahan; Delegate, Walter N. Boyer; Alternate, F. D. Rathbun. Lewis Leroy McIntyre, of New Boston, and James W. Wallace, Robert C. Johnston, of Aledo, were elected to membership.

The scientific program was a consideration of the subject of tuberculosis, both from the medical and the sociological view. Dr. F. D. Rathbun of New Windsor, sent a paper on The Early Diagnosis of Tuberculosis, which was read by Dr. Boyer. Dr. A. L. Craig, of Chicago, sent a paper on the same subject, which was read by Dr. Reynolds. Both papers were well received and appreciated by the society, and were fully discussed by the members. Dr. Craig promulgated the dictum that it is a serious mistake for persons with tuberculosis changing climate, going away from home alone, as many do, to wander and suffer, without definite aim, and without sufficient means; unless they can have unremitting care and be under surveillance. Every climate under the sun has at one time and another been lauded as favorable to the cure of tuberculosis, and yet the disease flourishes everywhere. Treatment at home, or in a sanitarium is, as a rule, greatly to be preferred.

Dr. J. W. Pettit of the Ottawa tent colony was present and gave an address on Facts and Fallacies in the Application of the Modern Treatment of Tuberculosis, bringing out prominently (as did also Dr. Craig in his paper) a belief that change of climate is not essential to the treatment of tuberculosis, but that abundance of pure air (in any climate) full, rich diet, and a constant care in the application of hygiene for both the sick and the well, are the rational means to stamp out the "great white plague." The importance of making a diagnosis before active or gross symptoms become manifest, and for surveillance for at least two years after all symptoms of the disease have vanished, was emphasized. General discussion followed the papers and the address. A vote of thanks was given Dr. Pettit.

UNION COUNTY.

Union County Medical Society met May 27, 1908, at Anna, Ill. Meeting called to order by President D. W. Grear. Eleven out of sixteen members were present. Dr. J. C. Stewart read a paper on Convulsions in Children, which elicited such an interesting discussion by all present that there was no more time for anything else on the program. The following were elected as Censors: Drs. J. C. Stewart, J. J. Lence and L. J. May. A regular committee of three was appointed, consisting of Drs. T. Lee Agnew, E. V. Hale and T. B. Goodman. The next regular meeting will be held in Cobden, Ill., on Wednesday, June 24, 1908. One new member was elected.

VERMILION COUNTY.

The Vermilion County Medical Society was called to order in the City Hall, Danville, May 11, by the President, C. E. Wilkinson. The Board of Censors was not ready to report on certain names which were laid over to next meeting. Program: Anatomy and Physiology of the Kidney, by L. B. Russell, of Hoopes-ton. A fine set of drawings was presented to illustrate the text. This was one of the very best papers ever presented before the society. Submucous Resection of the Septal Cartilage for Correction of Deflections, by E. E. Clark.

E. E. CLARK, *Secretary.*

NEWS OF THE STATE.

PERSONAL.

Dr. Leslie Rutherford, Peoria, left for Europe May 12.

Dr. and Mrs. Walter W. Greaves, La Salle, sailed for Europe May 27.

Dr. and Mrs. George W. Bronson, Streator, sailed for Europe July 20.

Dr. and Mrs. Philip S. Doane and family, Chicago, sailed for Europe June 18.

Dr. and Mrs. Morton Snow, Chicago, have left for their new home in Nashville, Tenn.

Dr. Frank Billings and daughter, Chicago, have returned from a trip to the Mediterranean.

Dr. Sanford P. S. Edwards has resigned as physician in charge of the Tri-City Sanitarium, Moline.

Dr. Otto T. Freer, Chicago, has been elected a member of the Royal Society of Medicine of London.

Dr. L. Earle Meloy and wife, Chicago, and Dr. Babcock Meloy, Lincoln, sailed for Europe June 20.

Prof. George A. Kemp of the University of Illinois, Urbana, has resigned, to take effect September 1.

Dr. Michael W. Kelley, Joliet, is in St. Joseph's Hospital seriously ill with paralysis, due to a spinal injury.

Dr. D. C. L. Mease, Freeport, has been elected president of the Stephenson County Telephone Company.

Dr. James Postle, De Kalb, has moved to Elgin and will take charge of the practice of the late Dr. Carlton E. Starrett.

Dr. Martha Anderson, Bloomington, has been appointed resident physician in the *Daily News* Sanatorium, Chicago.

Dr. John A. Koch, Quincy, has been appointed a delegate from Illinois to the International Congress on Tuberculosis.

Dr. and Mrs. Virgil Pinkley, who have been visiting relatives in Girard, have left for their home, Guanajuato, Mexico.

Dr. Otto J. Stein, Chicago, has resigned as professor of diseases of the ear, nose and throat in the Illinois Medical College.

Ira Ganstang, Chicago, senior student of the Medical Department of the University of Illinois, died from throat disease, May 7.

Dr. and Mrs. Edward L. Moorhead and their son, L. D. Moorhead, Chicago, sailed for Europe June 30 on the *Kaiser Wilhelm der Grosse*.

Dr. George E. Vosburg, Chicago, sailed for Carlsbad June 2, by way of the Mediterranean, to recuperate from the effects of his recent illness.

It is announced that Dr. William A. Evans, Chicago, has been named as major and surgeon, First Cavalry, I. N. G., vice Dr. Morton Snow, resigned.

Dr. Carl Wagner, Chicago, attended the meeting of the German Society for Surgery at Berlin, April 25, and was elected a member of this society.

Dr. Elisha C. Dunn, Rockford, for fifteen years a member of the council, is said to have been found guilty of having received bribes, and to have been fined \$2,000.

Dr. Robert G. Bourland, Rockford, has been appointed major surgeon of the Third Infantry, I. N. G., vice Major Carleton E. Starrett, deceased, subject to the report of the examining board.

Dr. Major H. Worthington wishes to announce that he is limiting his practice to diseases of the eye and ear, special attention given to fitting glasses. Marshall Field Building, Suite 900, 31 Washington Street, Chicago.

Dr. Charles W. Epsy, Chicago, is reported to be in a critical condition as the result of injuries suffered May 19, when he fell under the wheel of a street car while endeavoring to recover his hat. He sustained a compound fracture of the left leg, a fractured rib and serious internal and spinal injuries.

NEWS ITEMS.

The St. James Hospital at Pontiac was opened on June 1. It is a modern hospital in every respect and cost about \$100,000.

By the will of the late Mrs. Harriet S. Jones, St. Luke's Hospital and the Children's Memorial Hospital are each to receive \$5,000 before May 1, 1911.

Louis Ellisburg, a druggist, charged with the illegal selling of cocaine and morphin, is said to have pleaded guilty, May 13, and to have been fined \$200 and costs.

Mr. B. D. A. Moynihan, chief surgeon of the Leeds (England) Infirmary, delivered an address at a special meeting of the Chicago Medical Society, May 14.

Dr. Harriet M. Day, Moweaqua, will spend the summer abroad, and Dr. Mary F. Cook of Waynesville, Ohio, will have charge of her practice during her absence.

At the annual commencement exercises of the College of Physicians and Surgeons, Chicago, held June 9, Dr. Rudolph Matas, New Orleans, delivered the doctorate address.

Dr. Edward A. Fischkin has been chosen president and Drs. Kate Levy, Benjamin H. Breakstone and Jacob Frank directors of the Chicago Hebrew Institute, Chicago.

A motion for a new trial in the case of P. S. Scoda, charged with practicing medicine without a license, and fined \$200 April 30, was denied by Judge Seovill, May 9, and judgment entered.

At a recent meeting of the South Chicago Hospital Association, the president was authorized to advertise for bids for the construction of a building at 92d Place and Luella Avenue, to cost \$40,000.

At the Civil Service examination recently held to fill the places on the orthopedic surgery service at the Cook County Hospital, Chicago,

the following were awarded appointments: Drs. L. G. Bailey, first; Henry B. Thomas, second; Norman Kerr, third; W. R. Cubbins, fourth.

Anna Hiavacek and her daughter, Anna Paviovic, are said each to have been fined \$100 and costs by Judge Scovel, Chicago; on the charge of practicing medicine without a license, May 20.

"So you have decided to get another physician?" "I have," answered Mrs. Cumrox. "The idea of his prescribing flaxseed tea and mustard plasters for people as rich as we are."—*Herald and Presbyterian*.

A surgeon in a certain western city, having had for some months a run of appendectomies, recently erected a large dwelling house with all the modern improvements, which the citizens immediately christened Appendicitid Hall (Haul).

Phillopena Schmidt is said to have been fined \$100 and costs, June 4, by Municipal Judge Scovel, Chicago, for practicing medicine without a license. She is said to have been found guilty of a similar charge a year ago and to have been fined the same amount.

Dr. Albert L. Hughes, Macon, charged with securing money by false pretenses, is said to have pleaded guilty, June 2, and to have been sentenced to imprisonment for 30 days in the county jail, and to stand committed until he had paid a fine of \$10 and costs.

"Home-coming day" was celebrated at the Ottawa Tent Colony on June 18. The management extended an invitation to ex-patients to accept their hospitality and hold a reunion. In addition to the many present, a hundred or more sent greetings containing the glad tidings of a return to health.

At the annual meeting of the Physicians' Club, Chicago, May 15, the following officers were elected: Chairman, Dr. Henry B. Favill; secretary, Dr. Edwin B. Tuteur; treasurer, Dr. Charles L. Mix; and directors, Drs. Henry B. Favill, George E. Baxter, Daniel A. K. Steele, Alfred C. Croftan and Charles E. Paddock.

John Bartoli, Chicago, was recently awarded damages of \$10,000 against the Lakeside Hospital by a jury, because of burns suffered while submitting to x-ray treatment. The accident occurred April 30, 1901. The jury believed that the agents of the hospital had permitted Bartoli to remain too long under the rays.

The Chicago College of Medicine and Surgery (Medical Department of Valparaiso, Ind., University) held its annual commencement exercises in Valparaiso, May 19, when degrees were conferred on a class of 100 by President Brown. Addresses were made by Dr. George F. Butler, Wilmette, and Hon. Patrick H. O'Donnell, Chicago.

The *Medical Era*, St. Louis, Mo., will issue its annual series of gastrointestinal editions during July and August. In these two issues will be published between forty and fifty original papers of the largest practical worth, covering every phase of the diseases of the gastrointestinal canal. Sample copies will be supplied readers of this journal.

In honor of the twenty-fifth anniversary of his entrance into active practice in Chicago, Dr. Daniel H. Williams was the guest of honor at a banquet given by prominent colored people of the State. Colored phy-

sicians of New York presented Dr. Williams with a loving-cup, and the colored physicians of Boston sent a silver-mounted inkstand.

The officers and trustees of the Michael Reese Hospital, Chicago, take pleasure in announcing that hereafter any reputable practitioner of medicine may treat patients in either the private wards or rooms of the hospital. The courtesies are therefore extended to all practitioners desiring to treat patients in pay beds, in private wards or private rooms.

The Board of Supervisors of Sangamon County have declared that the County Physician is entitled to no extra compensation for attendance upon smallpox patients. Dr. O. J. Baldwin, retiring county physician, presented a bill for \$2,645, alleged to be due him for services rendered to persons suffering with this disease. The Board unanimously refused to favor the payment of this bill.

Mrs. Johanna White, a mid-wife of Chicago, charged with the death of Miss Nellie M. Shuff of New Berlin, Sangamon County, as the result of an operation, has been on trial before Judge Chetlaine. Miss Shuff died at the Wesley Hospital, where she was attended by Dr. Arthur H. Stoll, to whom she gave a statement implicating Mrs. White. Dr. Warren H. Harter, the coroner's physician, was present at the time the statement was given, and gave valued testimony at the trial. Mrs. White is 71 years of age.

Mark Twain, in the course of the recent Pilgrims' dinner in New York, talked of his pet aversion, Christian Science. "Christian Science," he said, "reminds me of the apple cure for drunkenness. In Hannibal in my boyhood the apple cure was very highly esteemed. I remember once hearing the Hannibal town drunkard expatiate on the apple cure. 'You believe in it, then, do you?' a listener asked. 'Believe in it? How can I help believin' in it?' the drunkard said excitedly. 'Ain't it cured me eight times?'"

The following resolutions were passed by the Illinois State Dental Society at its annual meeting May, 1908:

Resolved, That the Illinois State Dental Society commend the movement of the American Medical Association and the Illinois State Medical Society in their efforts to secure a higher standard of medical education in Chicago, a rigid administration of the Medical Practice Act in Illinois, and a higher standard of efficiency in the Illinois State Board of Health; and be it

Resolved, That the committee of this society is hereby instructed to do everything within its power to assist in these matters.

Mrs. Anna M. Davis, widow of Dr. Nathan Smith Davis, who was one of the most prominent physicians in America, died May 13 at her home, 291 Huron Street. Four weeks before she suffered a stroke of paralysis. Mrs. Davis was born in Vienna, N. Y., in 1820. When 18 years old she was married to Dr. Davis. They came to Chicago in 1849, when her husband accepted the chair of physiology and general pathology in Rush Medical College. When Dr. Davis was president of the American Medical Association Mrs. Davis accompanied him to all the

national conventions of that body. Her only surviving child is Dr. N. S. Davis.

Last month President Roosevelt wrote a letter to the chairman of the Committee of Arrangements for the International Congress of Tuberculosis, which will meet in Washington next September and October, in which he accepts the presidency of the Congress and takes occasion to express his appreciation of the work that is being done in this and other lands for the suppression of this disease. Dr. Trudeau has been elected honorary president, with Vice-President Fairbanks, Speaker Cannon and the governors of the states as vice-presidents. The committee of arrangements of Germany and Belgium include many distinguished officials of these nations, as well as physicians of international reputations. Plans are being carried out to make this one of the most notable gatherings ever held in this country.

Dr. William E. Casselberry has resigned as professor of rhinology and laryngology, and has been made professor emeritus of rhinology in the Northwestern University Medical School, Chicago. Dr. Frederick Menge has been appointed professor of rhinology and laryngology and made head of that department. Dr. J. M. Neff has been made associate professor of surgery and Drs. Frederic A. Besley, H. M. Richter and Allen Kanavel assistant professors of surgery. Drs. W. R. Cubbins and Frank E. Pierce have been appointed assistants in surgery, and Drs. Charles Matter, John C. Hollister, F. G. Dyas and William C. Danforth instructors in surgery. Drs. George B. Dyche, Paul Chester, Charles A. Elliott and A. Davis have been promoted to the positions of assistant professors of medicine. Dr. W. H. Buhling has been appointed assistant professor of clinical pathology, Dr. Joseph Brennehan as assistant clinical professor of pediatrics, Dr. Robert T. Gillmore assistant professor of gynecology, Dr. Prentiss of Harvard University assistant professor of anatomy, and Dr. S. Walter Ranson assistant in anatomy.

Never in the history of the American Medical Association has there been such a large attendance and such great enthusiasm as were present at the Annual Meeting. Chicago is truly a hospitable host. The 6,446 doctors were given by each member of the Chicago Medical Society and the Illinois Medical Society their greatest courtesy and most royal welcome. The scientific section meetings were well attended, and the many most excellent papers were received with interest and freely discussed. The headquarters at the Armory, with its place of registration, postoffice, telegraph office and exhibits, was the scene of constant and busy conferences. The House of Delegates transacted much important business, the greatest of which was the attention given to the movement to establish a national department of health. At the first general meeting in the Auditorium there was a large assembly, which taxed to the utmost the seating capacity. The reception and ball given the President, Dr. Herbert L. Burrell, marked the greatest social event of the week. Thousands of doctors and their wives were gathered at the Coliseum to greet the

President. The gathering on the following night at the Coliseum of the doctors for a lunch and smoker was an enthusiastic demonstration of the general good fellowship at this most memorable convention. The entertainment committee provided that this meeting should be entirely devoted to renewal of acquaintances, making new acquaintances and a general good time. The success of future meetings of the American Medical Association will be measured by the success of the Chicago meeting.

The medical profession of Illinois was recently represented in the President of the Illinois State Medical Society, Dr. J. W. Pettit, at the meeting of the Chicago Sunday Evening Club. This meeting occurred during the American Medical Association meeting, and the attending delegates were especially invited to be present. Dr. Pettit's response contained many practical suggestions which are of interest to the clerical and medical profession. He said in part:

"The work of the medical and clerical professions are along parallel lines, touching at many points and overlapping at others. It not infrequently occurs that the physician becomes a minister and the minister a physician. The work of each profession has been too exclusive in the past. We have not only been too independent of each other, but have held ourselves aloof from community life. Wherein we have failed in this respect other organizations step in to accomplish less perfectly what we have failed to do. Christian Science is a striking example. This medical and theological fad is a protest against too much materialism in medicine and a lack of spirituality in the churches. If we had been sufficiently alert to our duty and lived up to our opportunities this dangerous heresy would not exist. Physicians and clergymen should work together to overthrow this heresy by meeting a reasonable demand so irrationally and impractically met by this cult. We should show the public that all that is true in Christian Science is not new, and what is new is not true.

"My purpose in mentioning this subject is to call attention to the general fact that the growth of many medical, theological, political and sociological fads and heresies is due to our own shortcomings, and should be accepted as a protest against our failure to recognize our duty in some important particular. We should not regard current vagaries as due to the perversity of the public mind, but a cry for the truth. If we could only have the wisdom to recognize these demands before they are forced upon us we would not only serve the people better, but prevent the harmful influences which always follow in the wake of such heresies. The closer we can weave our lives into those of the people the more perfectly we will fulfil our mission. Let us heed the advice of the immortal Lincoln who said, 'Keep close to the people.' Much of the quackery in medicine and theological heresy in religion is the fault of our respective professions. Instead of denouncing them as they arise, let us first look within ourselves to see if the fault does not lie with us. By so doing

we will head off many such evils before they take root. The medical profession is awakening to its duty in this respect by seeking to educate the public along rational lines."

SOCIETY NOTE.

The Chicago Medical Society held its annual election on Wednesday, June 17, and the following officers, councilors and alternates were elected for the ensuing year: President, Dr. Alfred C. Cotton; secretary, Dr. Merlin Z. Albro; councilors-at-large, Drs. E. E. Henderson, Henry B. Favill, J. C. Stubbs, C. Hubart Lovewell, George H. Weaver; alternate councilors-at-large, William Harsha, A. E. Mowry, H. W. Cheney, Paul F. Morf, C. A. Buswell.

PUBLIC HEALTH.

Smallpox is reported at Bradley, Kankakee County.

Smallpox in mild type is reported in and around Marston. Joliet reports 3 cases of smallpox.

A number of cases of mild type of smallpox have been discovered at Mackinaw, and the whole village is reported to be under quarantine.

Seven cases of smallpox in one family at Alexandria are reported; 6 cases in another family and 2 in another in Whiteside Township, Marshall County.

State Inspector Crawford has found 22 cases of smallpox in Elgin, and has ordered all employes of the watch factory to show certificates of vaccination or be vaccinated.

Following statistics of Springfield for the year ending February, 1908, have been published by the city's Superintendent of Health. Almost 10 per cent. of the 787 deaths were due to consumption; 121 cases of diphtheria were reported, 14 deaths resulting; 252 cases of smallpox were reported, with no fatalities; 61 cases of scarlet fever, with no fatalities. The causes of deaths of the year are as follows: Typhoid fever, 25; smallpox, none; measles, 8; scarlet fever, 1; whooping cough, 1; diphtheria and croup, 14; grip, 4; dysentery, 3; other epidemic diseases, 3; purulent septicemic infection, 1; pulmonary tuberculosis, 76; other form of tuberculosis, 17; cancer, 33; other general diseases, 17; meningitis, 26; cerebral congestion hemorrhage, 26; paralysis, 27; convulsions of infants, 7; other diseases of the nervous system, 5; organic heart disease, 24; other diseases of the circulatory system, 23; bronchitis, acute and chronic, 8; pneumonia and bronchial pneumonia, 68; other diseases of the respiratory system, 19; diarrhea and interitis under two years, 26; diarrhea over two years, 4; hernia and intestinal obstructions, 6; peritonitis, 15; appendicitis, 6; other diseases of the digestive system, 23; Bright's disease, 32; other diseases of the genitourinary system, 18; puerperal septicemia, 6; other puerperal diseases, 2; diseases of the lo-

comotor system, 1; diseases of the skin and cellular tissues, 3; other malformations, 1; infantile diseases, 37; senile debility, 40; suicide, 16; accidents, 41; ill-defined diseases, 72; total, 787. In 1907 the total number of deaths was 1,295.

MORTALITY OF PRINCIPAL AMERICAN CITIES*—1907.

Deaths and Death-Rates from All Causes and from Pulmonary Tuberculosis:

CITIES	POPULATION,	ALL CAUSES		TUBERCULOSIS OF LUNGS		Per Cent of Total Deaths
	U. S. Census Office Estimate	Total Deaths	Death Rate per 1000 Population	Deaths	Death Rate per 10,000 Population	
New York.....	4,225,681	79,205	18.74	8,999	21.30	11.4
Chicago.....	2,107,620	32,143	15.25	3,477	16.50	10.8
Philadelphia.....	1,466,408	27,462	18.73	3,156	21.52	11.5
St. Louis.....	661,666	10,327	15.61	1,109	16.76	10.7
Boston.....	609,175	11,686	19.18	1,123	18.43	9.6
Baltimore.....	561,120	11,190	19.94	1,297	23.11	11.6
Cleveland.....	475,864	7,678	16.13	618	12.99	8.0
Buffalo.....	386,724	6,389	16.52	497	12.85	7.8
Pittsburg.....	383,895	7,387	19.24	408	10.65	5.5
Detroit.....	367,494	6,214	16.91	458	12.46	7.4
Cincinnati.....	347,123	6,414	18.48	848	24.43	13.2
Milwaukee.....	322,513	4,637	14.38	376	11.66	8.1
New Orleans.....	318,652	7,633	23.59	968	30.38	12.7
Washington.....	312,548	6,343	20.29	751	24.03	11.8

*Cities of over 300,000 population.

The *Bulletin* of the Chicago Health Department devoted considerable space to two infectious diseases, one which is prevalent and the other is usually to be found resulting from accidents due to the Fourth of July celebrations. The best control of tetanus is to be found in the prevention of Fourth of July accidents. Such an ideal state can hardly be expected. The department gives the following recommendations: "The Departments will supply tetanus antitoxin for the treatment of all suspicious injuries during the weeks preceding and two weeks following the Fourth of July. Treatment of thousands of cases throughout the country demonstrates that tetanus antitoxin, if administered soon—within 24 hours, if possible—after the infliction of an injury, affords perfect protection from tetanus. For small injuries, a dose of ten to twenty cubic centimeters should be administered subcutaneously. In extensive injuries, with laceration of muscles, antitoxin in either the liquid or dried form should be used locally, in addition to the subcutaneous injections. The Department will issue supplies of tetanus antitoxin on call at any of the Department ambulance stations or at Room 4, City Hall. Emergency cases—no other physicians being readily available—will be treated gratis by the ambulance surgeons and other medical men of the Department."

In regard to rabies, which is unusually prevalent in Cook County, the Department gives the following advice: "The public should appreciate the importance of securing a dog that has bitten any one and keeping him alive until it is positively known whether or not he is suffering from rabies. Postmortem examination or animal inoculations do not always demonstrate the presence of rabies, especially in its early stages.

* Table published in Bulletin of Chicago Health Department.

It is best to secure the dog and immediately notify the Department of Health, which will watch him for a few days. If he has rabies he will usually die within a week or so. It is easy then to state positively that the disease is or is not rabies. New York has a law, passed in 1902, that requires all dogs that appear to be suffering from rabies or have bitten anyone to be kept under observation for ten days. There should be such a law in this state, or at least an ordinance to the same effect in Chicago. If one is bitten by a dog, whether the animal is known to be rabid or not, the Pasteur treatment should be begun immediately, because although six weeks is the usual time, symptoms may develop in three or four days. If the dog does not die of rabies within ten days it will not be necessary to continue the treatment and no harm will have been done. The treatment is absolutely harmless. Chicago has an ordinance requiring the muzzling of all dogs running at large during the entire year. Experience shows that the decrease of danger during the winter months is not sufficient to warrant a relaxation of the law—January furnishes as many cases of rabies among animals as August. The present situation in Chicago demands the strictest enforcement of the muzzling law.”

NEW INCORPORATIONS.

The Secretary of State at Springfield has licensed the following corporations:

New Animal Therapy Company, Chicago; name changed to Animal Therapy Company; capital decreased from \$1,000,000 to \$100,000.

The Calumet Hospital Association, Chicago, has been incorporated with a capital stock of \$10,000 by Sorens Norsman, Gerhardus J. Stuart and Gerrit Pon.

The West Side Physicians' Club has been incorporated by Drs. B. H. Breakstone, Samuel Metcodd and W. M. Rightmann for social purposes and scientific investigation.

CHANGE OF LOCATION.

Dr. R. H. Spaulding, of Clinton, has moved to Selma, Calif.

Dr. H. T. Barnes, of Maywood, Ill., has removed to Pewaukee, Wis.

Dr. H. P. Hendricks, of 2932 Indiana Ave., Chicago, has removed to Green Bay, Wis.

Dr. C. P. Wikoff, of Emington, has moved to Chicago. Dr. Patch has taken his place at Emington.

MARRIAGES.

KENT KERCH, M.D., to Miss Minnibell Crane, both of Chicago, June 3.

JOHN J. ANDREWS, M.D., to Miss Florence Pardridge, both of Chicago, June 3.

CARL RANSEEN, M.D., Rockford, Ill., to Miss Hilda Bergland, of Elgin, Ill., May 27.

ALFRED C. BAXTER, M.D., Springfield, Ill., to Miss Ethel J. Mitchell, of Beacon, Mich., April 15.

ADOLPH H. OLSEN, M.D., Oak Park, Ill., to Miss Elizabeth Witt Gorden, of Chicago, June 10.

ARTHUR RAND WHITEFORT, M.D., St. Elmo, Ill., to Miss Mabel Andrews, of Carthage, Ill., May 29.

HENRY HOCH, M.D., Texline, Texas, to Miss Rose C. Gerble, of Jacksonville, Ill., at Carthage, Ill., May 17.

DEATHS.

MILTON CAIX, M.D. (years of practice, Ill., 1877); died at his home in Lewistown, Ill., May 24, from nephritis, aged 75.

JAMES BENJAMIN MCGINLEY, M.D., Rush Medical College, Chicago, 1885; died at his home in Chicago, May 19, after a long illness, aged 47.

JOSEPH H. KITZMILLER, M.D., Hahnemann Medical College and Hospital of Chicago, 1878; died at his home in Taylorville, Ill., June 8, aged 59.

GUSTAVUS A. HENRICH, M.D., Marion-Sims College of Medicine, St. Louis, 1899; died at his home in New Athens, Ill., May 9, from throat disease, aged 32.

MYRA R. HEWITT, M.D., Hering Medical College, Chicago, 1903; of Oshkosh, Wis.; died at the home of her sister in Chicago, May 29, from cancer, after an illness of three months, aged 47.

MICHAEL GETZ, M.D., Illinois Medical College, Chicago, 1901; a member of the Illinois State Medical Society; died at his home in Chicago, May 29, from uremia due to chronic nephritis, aged 47.

ELEN HANCOCK LYON, M.D., Hahnemann Medical College and Hospital of Chicago, 1892; of Chicago; died at her home in Wheaton, Ill., May 24, from cancer, after an illness of two years, aged 38.

FREDERICK WILLIAM RANGE, M.D., Eclectic Medical Institute, Cincinnati, 1896; formerly of Roseville, Ill.; died at his home in Monmouth, Ill., May 14, from cerebral hemorrhage, after a short illness, aged 36.

MICHAEL N. REGENT, M.D., Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; Rush Medical College, Chicago, 1896; died at his home in Chicago, June 5, from ptomain poisoning, after a short illness.

JAMES G. STEWART, M.D., Medical College of Ohio, Medical Department University of Cincinnati, 1864; a veteran of the Civil War; died at his home in Biggsville, Ill., May 7, from cancer of the stomach, after a lingering illness, aged 77.

WILSON H. DAVIS, M.D., Eclectic Medical Institute, Cincinnati, 1865; Rush Medical College, Chicago, 1895; professor of therapeutics

in Illinois Medical College: a member of the Illinois State and Chicago Medical Societies, died at his home in Chicago, May 19, aged 65.

MICHAEL W. KELLY, M.D., University of Michigan, Medical Department, Ann Arbor, 1879; of Joliet, Ill.; a member of the American Medical Association; died in St. Joseph's Hospital, Joliet, June 2, from cerebral hemorrhage, following a runaway accident a month before, aged 60.

CHARLES W. BEHM, M.D., Homeopathic College, University of Michigan, Ann Arbor, 1892; Northwestern University Medical School, Chicago, 1900; chief of the bureau of disinfection, Chicago health department; a member of the Illinois State Medical Society: died at his home in Chicago, May 16, from cancer of the liver, aged 38.

JOEL WALLACE WHITMIRE, M.D., Rush Medical College, Chicago, 1877; a member of the Illinois State and Livingston County Medical Societies; local surgeon to the Wabash System and Toledo, Peoria and Western Railway; and a member of the county board of United States pension examining surgeons: died at his home in Forrest, Ill., June 1, aged 56.

Book Notices.

THE MELLIN'S FOOD METHOD OF PERCENTAGE FEEDING is an original work. The analyses were made and the formulas computed in The Mellin's Food Company's Laboratory by the company's chemists. Press of The Mellin's Food Company, Boston, Mass., 1908.

PHYSICIANS' MANUAL OF THE PHARMACOPEIA AND THE NATIONAL FORMULARY. An epitome of all the articles contained in the U. S. P. VIII and the National Formulary by C. S. N. Hallberg, Ph.G., M.D., and J. H. Salisbury, A.M., M.D. American Medical Association, 103 Dearborn Avenue, Chicago.

The pocket manual gives in alphabetical order every preparation that is in either the United States Pharmacopeia or the National Formulary, with description, properties, dose, uses, combination, incompatibilities and sample prescriptions. The manual has a therapeutic index which adds much to its value.

NEW AND NON-OFFICIAL REMEDIES. A Reprint from *The Journal* of the American Medical Association of the articles tentatively approved by the Council of Pharmacy and Chemistry of the American Medical Association. Second edition, May, 1907. Prices: Single copy, \$0.06; twelve copies, \$0.65; one hundred copies, \$5.00; heavy paper cover, 112 pp.

The acceptance of any article has been based largely on evidence supplied by the manufacturer or his agent, but to some extent on investigation made by or under the direction of the Council. The book gives the formula, dose and action of the article and the claims as to its therapeutic effects and applicability. It may well be termed an appendix to the U. S. Pharmacopeia.

THE PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINES. A reprint of articles from *The Journal* of the American Medical Association. Fourth edition, revised to January, 1908. Prices: One copy, \$0.05; twenty-five copies, \$1.00; over twenty-five copies, \$0.02, stamps accepted.

From time to time *The Journal* has printed the reports of the investigations of the Council on Pharmacy and Chemistry and also other matter relating to the question of nostrums and proprietary medicines not directly connected with the work of the Council. Such mixtures as Antikamnia, Phenalgin, Thilon, Salacetin, etc., were subjected to special investigation by the Council and their report published for the information of the profession. Many of the more widely adver-

tised proprietary products have been analyzed by chemists under the direction of the Council and the report of their examination has been published in this pamphlet.

SYPHILIS. A Treatise for Practitioners. Edward L. Keyes, Jr., A.B., M.D., Ph.D., Clinical Professor of Genito-Urinary Surgery, New York Polyclinic Medical School and Hospital; Lecturer on Surgery, Cornell University Medical School; Surgeon to St. Vincent's Hospital. Sixty-nine illustrations on the text and nine plates, seven of which are colored. New York and London: D. Appleton & Company.

The book is essentially a practical one, and the subject and material has been founded upon a record of 2,500 cases of syphilis. The first chapter deals particularly with the question of syphilis in relation to public health. The treatment is very thoroughly described, special stress being laid upon the proper physiological and therapeutic question of mercury and the iodids. The last chapters of the book are devoted to the study of syphilis in the various organs and its effects upon the various systems of the body. The book is well illustrated; the plates are clear and the subjects for the plates are well chosen. The book commends itself to the general practitioner as well as the specialist in this line.

THE GREAT AMERICAN FRAUD. Samuel Hopkins Adams. Articles on the Nostrum Evil and Quacks. Reprinted from *Collier's Weekly*. Both series are under one cover. Among the subjects discussed are: Preying on the Incurables, Miracle Workers, Sure Cure, The Specialist Humbug, the "Patent Medicine" Conspiracy Against the Freedom of the Press—Strictly Confidential—the Treatment Accorded Private Letters by the Nostrum Manufacturers, Pond's Extract, Peruna, etc., etc. Series I—The Nostrum Evil: I, Introduction; II, Peruna and the Bracers; III, Liquozone; IV, The Subtle Poisons; V, Preying on Incurables; VI, The Fundamental Fakes. Series II—Quacks and Quackery: I, The Sure-Cure School; II, The Miracle-Workers; III, The Specialist Humbug; IV, The Scavengers. Prices: One copy, prepaid, \$0.10; five copies, \$0.40; ten copies, \$0.80; fourteen copies, \$1.00. Stamps are acceptable for amount under one dollar. The following prices do not include express or freight charges: Fifty copies, \$2.00; one hundred copies, \$4.00; five hundred copies, \$18.00; a thousand copies, \$35.00. Paper cover, 65 illustrations, 146 pages.

Physicians will find this a splendid booklet to give to their patients. Printed by the American Medical Association, 103 Dearborn Avenue, Chicago.

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No. 2

ORIGINAL ARTICLES

ARTERIOSCLEROSIS.*

THOMAS J. PITNER, M.D.

JACKSONVILLE, ILL.

In considering arteriosclerosis we are approaching the origin of many diseases. The study of this process throughout the body tends to broaden our views of the nature and causes of local diseases by showing how largely they are due to antecedent widespread arterial changes. Arteriosclerosis is a primary pathologic process. There are no morbid anatomic changes preceding it. This name was given by Lobstein, but we are indebted to that apostle of modern pathology, Virchow, for the first thorough study and description. He called it *endarteritis deformans* and regarded it an inflammatory process, a chronic fibrous hyperplasia, analogous to what occurs elsewhere, affecting the coats of the arteries and producing thickening and hardening of the vessels, with subsequent degeneration of their walls, even to obliteration.

The term as now used covers atheroma, which as it occurs in the aorta is a disease long known. But little mention has been made of arteriosclerosis in our text-books until recent years.

Sir William Gull and Dr. Sutton, about thirty years ago, made thorough researches on the subject, especially as to the changes in the capillaries, arterioles and smaller vessels. Their findings and views are indicated by the name they gave the disease, arterio-capillary fibrosis. They claimed that the principal element of the disease was the fibrous proliferation of the internal coat; that the other coats were involved, but not so generally and constantly; that the artery became thickened and hardened with narrowing of the lumen and subsequent degeneration. They did not differ from Virchow in their views, but extended greatly our knowledge.

Lionel Beale, the eminent microscopist, found the thickening of the muscular coat which is sometimes observed was not a true hypertrophy.

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

as that which occurs in the left ventricle in this disease, but a fibrous infiltration with degeneration of the contractile tissue.

Thoma and his pupils made extended investigations, finding the process also affected the veins and gave the appropriate name, angiosclerosis. Thoma contended that the primary lesion was in the media, a weakening or degeneration of the muscular layer with widening of the lumen, and that the thickening of the intima was a compensatory process—an effort of Nature to restore the normal caliber of the vessel.

The experiments of Thoma from which he drew these conclusions were, so far as known to the writer, confined to the aorta and apply to the atheromatous plaques. They consisted of injection of paraffin into the aorta at the pressure of 160 mm., the average of arterial pressure in such cases. The results showed that the nodules were smoothed out, which, he thinks, could not have been so, unless they were pushed back into a depression of the media at that point, due to previous degeneration of the media. A cross-section of the artery at this point after the paraffin injection may show, especially in advanced cases, that both coats are involved, but this would not determine which layer was first affected. If it be granted that the media was primarily involved and the intima later, this does not prove that the fibrous proliferation of the intima is a compensatory process. Moreover, these studies of atheroma in the aorta can not demonstrate the nature of the arterio-capillary process. The structure of the aorta is complex and differs materially from that of the arterioles and smaller vessels. These experiments of Thoma, or the inferences from his findings, can not apply to the arterioles, because they do not dilate as the aorta often does; hence no reason exists for compensatory contraction. On the contrary, the arterioles contract in the presence of an irritant or poison, which toxic substances are brought in contact with them through the blood stream. This corresponds with the law of reaction of the normal cell or protoplasm to the contact of an irritant.

The findings of Thoma are not confirmed by some recent experiments of Ophüls. He injected aortas with paraffin under the same pressure and conditions, but took only those of recent growth, decided, but not advanced atheromatous nodules, as the aim is to ascertain the seat of the primary lesions. There were no evidences of disease of the media. Cross-section of the vessel at the point of the nodule showed that the muscle formed a complete and uninterrupted circle: The nodule was flattened, as in Thoma's cases. This discrepancy in findings may be due to Thoma's experiments being made in the more advanced cases after both coats became involved.

The doctrine of compensation of the intima is attractive. Many recent writers have adopted it. But it seems questionable and should be regarded rather as an hypothesis. If, as it is said, the aim of Nature be to reduce the caliber of a dilated vessel she certainly overshoots the mark and leaves the artery narrowed even to occlusion. This narrowing of the lumen of the smaller arteries is the most damaging fact of the whole process.

In view of the above facts and considerations, and from a review of the findings of some of the most competent observers, I think we may say that the primary lesions of arteriosclerosis may be in any one of the three coats of the arteries or may occur simultaneously in all: that the greatest thickening is in the subendothelial layer of the intima displacing the fenestrated elastic membrane of Henle; that it is this thickening mainly which encroaches on the lumen of the vessel; that the elastic and muscular layers of the media are impaired or displaced. So that the walls of the vessel become composed chiefly of this non-elastic, non-functional, new fibrous overgrowth, which renders them hard and rigid and thus failing to assist in propelling the blood stream to the distal tissues and organs, thereby calling for increased work from the heart with resulting hypertrophy and increased blood pressure.

Arterial fibrosis may begin in the perivascular connective tissue, invading the adventitia and constricting the vasa vasorum, checking the nutrition of that section of the artery, causing the circumscribed form. This nodular or circumscribed form of arteriosclerosis affects chiefly the aorta and other large vessels. The nodules appear as small translucent pulpy patches protruding from the intima into the lumen of the vessel. Later they become more opaque with a yellowish color. These nodules may degenerate, soften and rupture into the vessel, producing the so-called atheromatous ulcer. The débris discharged into the vessel may cause embolism, and the seat of the broken nodule, perhaps further roughened by calcareous plates, favors the formation of a thrombus.

Microscopically, the degenerated nodule is composed of fat droplets, crystals of cholesterin and granular detritus with round-cell infiltration at the margin. The disintegrating nodule may extend outwardly through the media, distending the adventitia, causing aneurism.

Certain arteries are more frequently involved in arteriosclerosis than others. Bregmann, under Thoma's direction, found the ulna involved in 94 per cent., radial 86, anterior tibial 93, popliteal 79, cerebral 89, splenic 82, aorta 67. No mention in the list seen is made of the coronary arteries, which are among the most frequently affected.

In the order of importance, the cerebral, coronary and renal arteries should be placed in the first rank, because of the vital functions of the organs supplied. The changes of the arteries near the surface can be ascertained by inspection and palpation, but these should be supplemented by appropriate instruments for recording the tracings of the radial pulse and measuring the blood pressure. Perhaps the first sign noticed will be the prominent tortuous temporal arteries, but the carotid, branchial, radial, anterior tibial and the arteries of the foot should all be carefully palpated and compared. The diffuse variety of sclerosis being most common in the terminal vessels, they will usually be found uniformly thickened and hard, difficult to compress. A hardened artery should be distinguished from one of high tension only. Not infrequently the radial artery, for example, will be found irregularly hard and beaded to the touch. Sometimes calcareous deposits will make them of bone-like hardness. The vessels of the retina furnish a good field for observ-

ing directly the condition of the arteries. The changes there seen make it probable that similar changes exist in the cerebral arteries. Hemorrhage of the retinal vessels is often the first evidence of advanced arterial disease.

Clinically considered, the disease may be conveniently divided into three groups: those occurring in children and young adults, those of middle life, and the senile cases. There has been a general impression in the profession that arterial sclerosis is a disease of old age, only occurring seldom in middle life and very rarely in children. But extended examinations of recent years have demonstrated its prevalence in children and that nearly all cases have their beginnings in middle life.

Chiari found it in 25 per cent. of autopsies in cases of infectious diseases under 25 years of age. Symnitzky, in a similar series, found it in 27 per cent. and, omitting those under 2 years old, 48 per cent.

Wiesel published two years ago a report of autopsies in 300 cases occurring in children and young adults in Franz Joseph Hospital, Vienna. His examinations were extended and exceedingly thorough. The results show its surprising frequency in the infectious diseases. He found the characteristic lesions in 75 per cent. of the autopsies. These lesions were found not only in the aorta and large arteries, but in the terminal and smallest vessels. The greater per cent. found by Wiesel may be explained by the more thorough search and refined examinations. These results throw light on the pathogenesis of the arterial disease and demonstrate the potency of toxic agents in its production.

What becomes of the lesions that occur in the cases of acute infections which recover? Probably the morbid products are replaced by normal tissue. If so, why may not repair occur in cases in middle life and even to some degree in certain cases of old age. In the group of middle life, we see the manifestations of heredity. Some families develop the disease very early. Lithemia now becomes an active factor, and syphilis plays a prominent rôle. At this period the influence of continued muscular strain becomes apparent, as do also the effects of intoxicants. Here we usually first notice the increase of arterial tension. Nearly all the influences which produce the disease are active in middle life, and its early manifestations may be found if carefully looked for. The senile cases present a familiar picture with the characteristic features more marked, except that high tension and cardiac hypertrophy are frequently absent. The signs of gradual decadence from arterial degeneration, especially of the cerebral vessels, are more in evidence. But the accidents of the disease, such as hemorrhage, embolism and thrombosis, are not more frequent than in the later middle period or the decade between 50 and 60.

ETIOLOGY.

There is no single sufficient cause. Many factors conduce to the one result. Heredity, toxic agents and strain will cover most of them. The toxic factors may be divided into extrinsic and intrinsic—those entering from without the body and those developing within. Of the former the toxins of various infectious diseases, alcohol, lead and tobacco may be

mentioned. The autotoxins may arise from faulty metabolism, defective elimination and the products of impaired or perverted intestinal digestion. Excessive eating, particularly the proteids, is a very common factor. Prolonged muscular or mental strain has a very decided influence. In the rush and worry of business and the stress of our complex and strenuous life this factor comes into prominence. Allusion has been made to the influence of infectious diseases in developing arteriosclerosis in the young. The results are also found in later life. Syphilis has long been known as one of the leading causes. Typhoid fever has an important rôle, as has been shown by Thayer in his observations of patients months and years after recovery. He found evidences of sclerosis in 48 per cent., whereas in a like number of the same ages, 10 to 50 years, of those in ordinary health who gave no history of typhoid, only 17 per cent. showed signs of arterial disease.

The influence of sex is marked. In middle life there are at least three times as many cases among men as in women. The difference is not so great in the senile cases. The comparative frequency of the disease in men illustrates the influence of muscular strain and intoxicants in its causation.

Arterial hypertension has an important influence on the extent and results of sclerosis. It is present in nearly all cases. According to the view resulting from the investigations of von Noorden, Klemperer and others, this condition is due to toxins circulating in the blood which in younger life are eliminated by the kidneys, but later the kidneys, failing to completely eliminate the toxins, the latter are deposited where they will do the least harm, viz.: in the fibrous tissues. In the process the coats of the arteries are injured and the characteristic hypertension is set up. This hypertension is not steady, but occurs in paroxysms due to the absorption of a large amount of toxins from the intestinal canal. But whatever may be their mode of action in producing high tension and sclerosis there seems to be no question as to the fact.

SYMPTOMS.

The general symptoms of arterial sclerosis are not characteristic and as usually observed are connected with symptoms pertaining to the associated diseases of the organs affected by the sclerosed arteries. It is insidious in the onset and slow in its progress, often without pain or discomfort which would lead the patient to consult his physician. It is usually first recognized when he comes on account of some other or incidental ailment. But there are early symptoms which are suggestive and should lead to the careful physical examination of the palpable and visible arteries already mentioned.

Huchard, Traube and others affirm a prodromal and curable stage where the toxemia causes spasms of the arterioles, increased force of the heart from increased resistance. This condition is likely to be manifested by drowsiness, lethargy, morning fatigue, coldness of the extremities, migrainous or neuralgic attacks with accentuated second aortic sound. These symptoms occurring in a man of middle age who lives well

should suggest possible arteriosclerosis. If in addition to the symptoms quoted we find frequent vertigo, despondency, unusual irritability of temper, persistent insomnia, impairment of memory, momentary loss of consciousness, or mental confusion, slight convulsive seizures, tingling and numbness of the extremities, slow pulse and high tension, it amounts to a probability of arterial changes already present. Most of these symptoms point to cerebral disturbances of the circulation connected with arterial sclerosis. Changes in the manner and habits of the old, such as are commonly termed childishness and dotage, denote arterial changes in the brain with impaired nutrition. Sudden and striking symptoms often occur due to hemorrhage of cerebral arteries or rupture of miliary aneurisms, or more frequently to occlusion of the vessels from thrombosis or embolism, such as apoplectic attacks, monoplegia, hemiplegia, with various motor and sensory disturbances according to the location and extent of the brain lesion. These conditions produce a train of symptoms which can not here be even mentioned.

The clinical manifestation pertaining to the heart may be briefly alluded to. The first change is simple hypertrophy from resistance in the terminal vessels: as the disease progresses the coronary arteries become involved, and this occurs in nearly all cases. The nutrition of the heart muscle is thereby impaired. Fibrosis and myocarditis frequently follow with degeneration and dilatation. Sclerosis of the coronary arteries was first well described by Jenner, in 1775, who showed its relation to angina pectoris. But he examined the heart of Thomas Parr, who died at the age of 150 without disease of the heart or vessels. Quain found sclerosis of the coronaries in 80 per cent. after the fortieth year. Perhaps this may explain why we moderns so seldom reach the centenary mark, to say nothing of fifty more.

Harlow Brooks, in an examination of 400 cases, found sclerosis of the visceral arteries in 368, and of these 270 showed the disease in the coronary arteries. The average age in these cases was 45. Muscular lesions were apparent to the naked eye in all but 15. In 215 the changes were of a degree to be noted as a contributory cause of death. Heart disease has been too generally regarded as a lesion of the valves only. The observations quoted and many others of similar findings demonstrate the prominent rôle of sclerosis of the coronary arteries and consequent muscular degeneration in the pathology of heart diseases. The symptoms of coronary sclerosis and muscular degeneration will be those of depressed function; feeble and irregular contractions. Dyspnea on exertion is the most important and constant symptom.

The valvular lesions due to atheromatous changes should be considered in this connection, but the limits of this paper prevent. For the same reasons we can merely allude to the important relation of arterial fibrosis to chronic nephritis. This arterial change is probably the primary lesion in the majority of the cases of Bright's disease, but the changes so soon affect the renal functions that the symptoms due to these disturbances predominate and the clinical picture of nephritis occupies the field. There are many cases where the fibrosis is outside the

arteries at first, in the perivascular connective tissue, and extends through the adventitia to the inner coats. The toxemia resulting from nephritis extends and increases the systemic arterial disease. In the cases with associated Bright's disease and cardiac hypertrophy there is marked arterial hypertension.

Sclerosis of the gastrointestinal arteries, while not so frequently found, is important and may explain obscure symptoms in diseases of these organs, particularly attacks anginal in character, also those of depressed functions. The same may be said of arterial disease of the pancreatic and hepatic arteries. All of the organs may be affected, but usually the principal clinical manifestations pertain to few in a given case.

TREATMENT.

If it be true that toxic agents, errors in diet and strain are leading factors in causing arteriosclerosis, then it must be admitted that there is promise in prophylaxis and a stage of the disease where much may be done to modify its progress. Unfortunately these cases are not usually seen early, unless they are discovered incidentally while seeking advice for something else. It is very important that the doctor should be on the lookout for the early manifestations, bearing in mind that it begins in middle life in most cases, that it is not attended by any marked symptoms at first and very liable to be overlooked. Individual predisposition, hereditary or acquired, should be ascertained. The family history is important. Lithemic patients should be carefully watched, appropriate dietetic and hygienic regulations carried out. With the first indications of the disease the patient should be impressed with its significance—its insidious nature and steady progress with the certainty of shortening life, and appropriate regimen adopted and maintained. The particular line of treatment adopted would be determined by conditions found, and the etiologic factors prominent in a given case. In general it may be said that the diet should be simple, carefully selected, easily digested and not large in the proteids; tea and coffee used sparingly, alcohol cut out entirely and tobacco in strict moderation, and in many cases not at all. The patient should maintain a moderate pace in all his activities. Hurry and worry never allowed. Excitement and emotional disturbances should be avoided, with special care to avoid muscular or mental overstrain. At the same time moderate and regular exercise and work are to be strongly advised. Warm baths and massage are of benefit.

The aim of medical treatment should be to restore disordered functions, to promote elimination, to aid digestion, gastric and intestinal, and to modify high arterial tension; also, if possible, to promote absorption of the fibrous proliferation. In the cases where the intestinal toxins are a factor, and this means, in my judgment, the majority, there is no better remedy than calomel. The low spirits of high tension are often quickly relieved by its use as a laxative. But greater benefits are secured by more continued use. Given in 1/10 grain doses three times daily for weeks is likely to correct intestinal fermentation and put the patient in a more comfortable state; or it may be given in 1/4 or 1/2 grain doses

every night for a week or two, then renewed after an interval. Whatever its mode of operation, the results of calomel thus used have been, in my experience, very satisfactory.

The nitrites are generally recommended as vasodilators and relaxants. Their good effects in cases of hypertension are not questioned. Nitroglycerin is usually employed, but its effects are transient and pass off in about two hours; therefore, a dose given three times a day will not be of as much value as given two or three hours apart. Potassium iodid and sodium iodid have been used with benefit in these cases. They should usually be given in small doses—5 grains—three times daily for a few weeks and repeated after an interval. The iodids act as arterial relaxants and also to promote the absorption of inflammatory products. Time prevents mention of other remedies and measures important in the treatment.

The greatest function of the physician is to point out the means of prevention, to impress upon his patients their liability to these degenerative changes before they grow old in years and how the disastrous results of this process in its advanced stages may be largely avoided by a proper mode of living and they pass on safely to a green old age.

DISCUSSION OF THE PAPER OF DR. PITNER.

Dr. Ferd Engelbrechtson, of Chicago:—The doctor covered a good many points in his fine paper, but still he overlooked one point in regard to arteriosclerosis which I consider very important. It is a physiological consideration. There are many salts concerned in the development of the osseous system, and after the bones are saturated, what becomes of these salts which are still introduced into the system with the food? The system is ordinarily not prepared to eliminate them. They must be deposited somewhere, and I think the non-elimination of these salts will produce many conditions including arteriosclerosis. The bones reach normally a stage saturation at the age of 40; this may be hastened or delayed by pathological conditions. At this stage the arteriosclerosis commences; to be diagnosed later by the signs and symptoms produced by this condition. From this point of view I think it is pretty hard to establish prophylaxis, and still at the same time, I know that the condition can be delayed considerably, and when present the symptoms can be relieved by improved circulation and elimination.

Dr. William J. Butler, of Chicago:—I wish to call attention to one or two points in connection with this paper. The author spoke of the use of potassium iodid and its influence on cardiovascular disease, I wish to refer to the reaction we were discussing a little while ago as being of some value. I think there has been quite a little said on the influence of potassium iodid in regulating arterial tension and favorably influencing cardiovascular disease, and likewise the influence of calomel. Now, it is exactly in these cases where the serum diagnosis of syphilis is of considerable value. I think it will be found in general that such lesions of the cardiovascular system as are dependent upon syphilis, whether it be an aortitis, arteriosclerosis, or a myocarditis in conjunction therewith, will be benefited by iodid of potassium or calomel, and the favorable influence of the prolonged administration of calomel spoken of can only be interpreted from that standpoint. In these cases undoubtedly the effect of antispecific medication against the primary disease of syphilis, which has involved the vascular system, will be found advantageous. The serum reaction for syphilis will prove of value in deciding the etiology in cardiovascular lesions.

Dr. R. B. Preble, of Chicago:—I feel some hesitancy in attempting to discuss a paper of this sort because of the great breadth of the subject. I can appreciate

how laborious the efforts of the Doctor must have been in the preparation of this paper, which practically covers almost all the diseases of the latter half of life, if we exclude from consideration the acute infectious diseases, and the various neoplastic processes which invariably make up the proportion of diseases which come to us in the latter half of life and are due to arteriosclerosis. What lies back of the arteriosclerosis, as the essayist has pointed out, is unknown in many instances. While syphilis is supposed to be the cause of it in some instances, it is not by any means in all, and I can not agree with Dr. Butler in saying that the beneficial effects of iodid of potassium are confined to those cases based on syphilis. I myself have the fullest confidence in the iodids, if continued, not for a week or a month, but month after month and year after year; they have a beneficial effect on these processes. One could offer evidence in support of that opinion, although it must be admitted that such evidence is not direct. The most direct evidence is by following the condition of the vessels, and one can in many instances find the vessels softened and the feel of them changes under the influence of potassium iodid.

Another point is the uncertainty of the prognosis of patients of this sort. No matter what the manifestations may be as to the renal, cardiac, cerebro-spinal, or gastrointestinal conditions, the clinical picture varies in character, and these patients are liable to sudden interruptions in the course of the disease or to sudden death, particularly in these advanced cases of arteriosclerosis, cerebral hemorrhage or thrombosis may suddenly develop, or there may be some severe circulatory disturbance of the gastrointestinal tract, either thrombosis or embolism. On this account there is great liability of sudden death in these cases.

Dr. Joseph L. Miller, of Chicago:—Dr. Pitner has given us a good review of this subject, but, as Dr. Preble has said, it is so broad that it is practically impossible to cover it in the short time allotted for discussion. There are some points of interest which we should consider. From a pathological standpoint, arteriosclerosis may be subdivided into two distinct classes: Those cases in which the intima is involved, a type of arterial change which is noted under high pressure in chronic nephritis. The second group is that in which the media is involved. This is a form of arterial change which we find in elderly people in whom there is a calcareous deposit in the media, and the changes in the intima associated with it are usually secondary and are often found just over the area where we have the calcareous changes in the intima. These are the same changes as has been described by Wiesel in the acute infections. There exists here primary degeneration of the muscle, and a secondary deposit of lime salts. Changes of this same character may be produced experimentally by adrenalin, digitalin, and a great variety of substances, and even the iodids.

In the treatment of this class of cases, I agree with Dr. Preble that many of them which are not of syphilitic origin are benefited by the use of iodids. I would not go so far as Dr. Preble and say that we can see distinct softening of the arteries in non-syphilitic cases. The benefits derived may come from the lessened viscosity of the blood, which has been reported as taking place after the continued use of iodids in small doses; this lessens the resistance of the blood passing through the vessel.

Dr. C. D. Wescott, of Chicago:—This subject is one of intense interest to the eye doctor, for he has an opportunity to see the changes in the retinal vessels of these patients in the course of his routine examinations for refraction. With the ophthalmoscope we see changes in the vessels before a patient realizes that he is ill or before he has been placed under medical care. We see these retinal changes most commonly in middle life, and it has been my privilege frequently to inform such people who did not suspect any constitutional condition, that it would be wise to place themselves under the care of a good internist. The changes we see with the ophthalmoscope in these vessels, magnified about 15 diameters, are increased tortuosity, then an actual thickening of the coats, especially the middle coat, finally the so-called silver-wire artery when it has become almost or entirely obliterated. At the same time, we see turbidity of the

retina and a beginning haziness of the crystalline lens, due to the change in its nutrition when the change in the vessels has advanced. We can see with the ophthalmoscope the progress of these cases very nicely. After a little while we see hemorrhages in the retina—dot-like hemorrhages. We may also watch the improvement in these cases. In a man, 60 years of age, I have seen a considerable hemorrhage which interfered very much with vision and numerous smaller hemorrhages, entirely disappear under treatment, and the media clear up. What I have said is just a hint for the more general use of the ophthalmoscope by the general practitioner. Just as the oculist has been able to see the first evidences of nephritis and diabetes many times, so he sees these cases in the beginning when it is possible to check the disease by proper medical treatment.

SOME POINTS CONCERNING THE TREATMENT OF DIABETES MELLITUS, WITH ESPECIAL REFERENCE TO THE OATMEAL DIET.*

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It is a well-known fact that there are different types of diabetes mellitus. Some diabetics, particularly adults and those who are obese, grow very careless as to diet, disregard the directions of their physicians, but still show a spontaneous preservation of health, live to a ripe old age, and die perhaps of some other disease. Other patients, particularly young, spare and neurotic individuals, in spite of skilful treatment on the part of the physician and the most conscientious cooperation on their own part, will have the disease run a malignant course, terminating fatally, oftentimes in a few months. Between these two types—what one may call the benignant and malignant—is a large middle class of patients, where the future history of the case is to depend upon the careful recognition of the nature of the disease on the part of the physician, on his watchful care of the patient, and the conscientious following out of the dietetic and hygienic rules on the part of the patient. It should be, therefore, the first duty of the physician, when he recognizes the existence of diabetes in an individual, to classify as nearly as possible the particular case in question. This he does, first, by the subjective and objective examination of the patient, with careful consideration of the history. These points I need not dwell upon at this time. Secondly, there should be a careful study of the urine in its relation to food. Exact knowledge requires exact quantitative analysis of the urine, and quantitative estimates as to the amount and character of the food. Approximate estimates are all, however, that are commonly demanded. This approximate estimate as to the type of disease is made by having the patient for a few days on an ordinary full mixed diet, that is, one consisting of proteids, carbohydrates and fat in such amounts as the patient desires to take, the amount of each kind of food roughly estimated or even carefully weighed. The amount of urine, its specific gravity, its content in sugar and the acetone bodies is carefully noted. Then the patient is placed for a few

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days on a diet from which carbohydrates are removed, yet one sufficient in caloric value to meet the ordinary demands of the body. In the milder cases a prompt reduction in the amount of sugar is the result, together with a diminution in the amount of urine and a lessening of the thirst. In many instances the sugar will entirely disappear. Such a case, other things being equal, may be looked upon as of the milder type. In the severer types of diabetes, the sugar may not entirely disappear, in spite of the fact that the diet is wholly proteid and fat. This, of course, is but a rough outline of the manner in which the physician attempts to "get a line" on his case. There are many details which must be here omitted.

It should be mentioned, however, that a sudden change from a full diet to a carbohydrate-free diet should be looked upon as attended by some risk, as acetone bodies, which are prone to appear in moderate amount when such a change is made, may appear in large amounts and carry with them some danger of acidosis if the rigid diet is too long continued. But the first point I wished to make was that the physician should, by a careful study, as I have briefly outlined, attempt to classify the individual case.

Now, by placing the patient upon this diet and removing the carbohydrates from the food for several days, a second object is attained, and that is the establishment of tolerance for carbohydrates.

A fundamental conception of diabetes, though it must be admitted that much of this conception is largely theoretical, is that the cells and tissues of the body are, for some not clearly understood reason, unable to utilize the sugar that is brought to them in the blood. We may conceive of these cells as having been overworked, as being incompetent to utilize in the production of heat and energy the sugar that is set before them. By keeping the carbohydrates from the food, less sugar is produced, less work in the way of metabolizing the sugar is demanded of these tired, incompetent cells, and they are given a rest. In this way they acquire a tone so that after a period of carbohydrate-free diet they may again be able to utilize the sugar. We find, therefore, after these carbohydrate-free days, that if carbohydrates are added to the food, the body is often tolerant of what before it would not tolerate. The principle involved is the same as that applied in the treatment of other organs that have become for the time-being incompetent. It is the same principle that is applied in the treatment of an incompetent heart where, by placing the patient at rest in bed, a heart again acquires tone and becomes tolerant of an amount of physical work that before it could not endure. So one of the underlying principles in the treatment of diabetes is to keep tolerance at as high a mark as possible. To this end it is often necessary that patients should be placed, every few weeks, for a day or for several days at a time, upon a diet from which carbohydrates are strictly excluded, in this way again and again re-establishing tolerance.

Another important point to remember is that in not a few cases, particularly of the milder type, the presence in the urine of a moderate amount of sugar is not, after all, an indication of serious evil. We must

look at our patient as a whole, and not have our mind directed too intensely to the presence or absence of sugar in the urine. Not only the presence of acetone bodies and ammonia should be watched, but it is of great importance to note the preservation of weight, of good appetite, of energy, and of ability to do physical and mental work.

As is well known, one of the dreaded complications of diabetes is coma. The conception of this is that it is due to an increase of acid bodies, particularly the so-called acetone bodies in the blood. There are two things that have been proven by experience to be of a great value in the warding off of coma. Drugs, as a rule, have little value in the treatment of diabetes, except that symptomatically opium is sometimes of benefit; but the use of alkalis where coma seems impending, as evidenced by the increase in the acetone bodies and ammonia in the urine, is of unquestionable good. Bicarbonate of soda can be given by mouth or, if coma seems imminent, can be given per rectum, subcutaneously or intravenously.

A second fact that clinical experience has clearly demonstrated is that the diabetic can not be kept for too long a time on a diet that is entirely free from carbohydrates, without danger of coma. To this end all our patients have to be given sooner or later a certain amount of carbohydrates. When coma threatens as the result of keeping the patient for too long a time on a proteid-fat diet, it may sometimes be warded off by adding liberal amounts of carbohydrates to the diet.

I have spoken of the importance of establishing tolerance and of warding off coma in diabetes, and I wish here to say a word concerning the value of the oatmeal diet in these two particulars, that is, its value as an aid in establishing tolerance and in warding off coma. A few years ago von Noorden advocated the use, in a restricted group of diabetics, of an oatmeal diet. This diet consists of 250 grams of oatmeal, 250 grams of butter, and the whites of from six to ten eggs. The oatmeal should be thoroughly cooked with water for two hours; then the butter carefully stirred in, and the whites of the eggs stirred in last, or even after the oatmeal has been taken off the stove and is cooling. This amount constitutes the diet for an adult for twenty-four hours. It should be divided into five to eight meals, and may be taken either as a thin gruel, as mush, or it may be fried or rather just browned and served as fried mush. Slight variations from this are, of course, allowable, and a cup of clear coffee, a glass of sour wine, a stick of celery, or two or three slices of tomato may be allowed with the oatmeal, to relieve the monotony of the diet.

At first thought one would say that this diet would not be tolerated for any length of time by an ordinary stomach. Experience, however, shows that patients, often patients with delicate stomachs, and even children, will take this oatmeal for several days with very little complaint. Occasionally a stomach is rebellious, and this form of treatment has to be given up.

The second objection, that so large an amount of carbohydrates as is contained in the oatmeal would surely increase the sugar in the urine,

and that the fat might increase the acetone bodies, can only be met by the statement that in selected cases the sugar disappears as well as the acetone bodies. Just how this works is a matter for speculation.

Now, a point that I desire to emphasize is that this oatmeal diet is not in any sense a cure for diabetes. So far as I know, there is at present no cure for this disease. Exceptionally we hear of a case that has apparently recovered. The field of operation of the oatmeal diet is limited. It is not suited to the milder cases; it may make them worse; von Noorden expressly warns against its use in the milder type of disease. I have found it of greatest value in cases of diabetes of the severer type, where on the ordinary diabetic diet the case seems to be going wrong, acetone bodies are appearing in the urine, and the patient is gradually losing strength and weight.

Where it works favorably, under its influence the acetone bodies may disappear from the urine, and a temporary increase in tolerance for carbohydrates is manifest. I have been particularly gratified at the results in several cases of diabetes in children. In this form, a notoriously severe type of diabetes, I have seen the sugar entirely disappear from the urine and remain absent for several weeks. In one case of typical diabetes, the child is alive at the end of a year and a half, and with ordinary care the urine is free from sugar. This was a typical severe case of diabetes that was resisting the ordinary diabetic diet; but on the oatmeal diet within three days the urine was free from sugar, and the results in the year and a half following this have been, as I have said, most happy.

I have spoken of the use of the oatmeal diet merely in outline. Further details may be found in an article in *The Journal of the American Medical Association* for March 14, 1908. There also will be found references to von Noorden's original article. In this discussion of the treatment of diabetes, which is necessarily brief, because of the time limit set for these papers, I have merely tried to bring out a few of what seem to me important points, and I would, in summarizing, emphasize the importance of accurate classification of the individual case of diabetes as it comes to us. There should be strict individualization in the treatment of this disease, as of most others. In the second place, I would emphasize the importance of attempting to keep tolerance at as high a mark as possible; and, lastly, I would call attention to the great value in a restricted group of the severer cases, of the oatmeal diet of von Noorden, its value showing particularly in the aid it gives us in warding off coma and in establishing tolerance.

DISCUSSION ON THE PAPER OF DR. HERRICK.

Dr. Frank Billings, Chicago:—I desire to say a few words on this subject because I have had some experience with this treatment. I unreservedly agree with all that Dr. Herrick has said; but until we know more about the cause of diabetes our management of patients suffering with the disease must be along the line of experiment which will be best suited to the individual case. It is interesting to know that at the German Congress of Internal Medicine, von Noorden and his experimenters have just made a report which some of you may have seen. Dr. Osler, in a recent number of *The Journal of the American Medical Association*, refers to this report. von Noorden in his work on diabetes

points out that there is a relation between the secretion of the thyroid gland and the pancreas which has to do with the production of glycosuria. In the experiments made they have found that the extirpation of the thyroid gland in dogs renders all experimental lesions of the pancreas void as to diabetes. We know that by certain experiments on the pancreatic gland we can produce artificial diabetes. If the thyroid gland is removed in dogs, then by irritation of the pancreatic gland one can not produce diabetes. With the thyroid gland removed if we irritate diabetic center in the floor of fourth ventricle clinically diabetes can not be produced. Here is a step in our knowledge which may be utilized.

As to the oatmeal treatment, I have used it since von Noorden announced it. The amount which Dr. Herrick enumerated as being advised by von Noorden for an adult weighing 150 pounds, is twice the number of calories or heat units necessary for a healthy man. It amounts approximately to 4,000 calories, or heat units. Chittenden and others believe that 20,000 calories are too much for the ordinary working man. In combining the amount of oatmeal, butter, and egg albumin, as advised by von Noorden, we use twice the amount necessary for a man to do ordinary work. In children it is necessary to cut that amount in two, perhaps one-half or two-thirds for a child, and in other individuals and grown people, who are hungry with that amount of food, they will sometimes do well on a large amount. I have a man at the Presbyterian Hospital who is getting twelve ounces of butter, twelve ounces of oatmeal, and the whites of about twelve eggs in twenty-four hours. He expresses himself as satisfied, and even on that large amount of carbohydrate and of fat, his sugar has declined from 5 per cent. to 1 per cent. As Dr. Herrick has said, I have found but few people who dislike it. I have kept children on it three weeks for the first trial, then for a week or a month at a time. Grown people complain more than children. Some grown people will take it for a week or two weeks at a time. Every one will take it for a few days at a time for two or three weeks out of every month. And another remarkable thing is, as Dr. Herrick has pointed out, the rapidity with which sugar will disappear from the urine. Many a time I have seen urines containing 3, 5 and 6 per cent. of sugar, clear up so that the sugar would disappear within forty-eight hours. In other words, the urine would become sugar-free on that diet. I can not say that it does this in all patients. In chronic cases of diabetes that have been under observation for years I have had two deaths, the patients going rapidly into an acute coma, in spite of all the measures that we used, the individuals dying within a few days from the commencement of the von Noorden diet. These are the only two disastrous results I have had, because I have been more cautious since that time. I have not only seen beautiful results, such as the disappearance of sugar from the urine, but the disappearance of diacetic acid and acetone from the urine. I recall the case of a girl, 6 years of age, in the Presbyterian Hospital, who, with 5 per cent. sugar in the urine, was passing over 1,600 c.c. in twenty-four hours. The first day, when she was put on a diet of one slice of bread, the sugar remained stationary. She was then put on the von Noorden diet, and the sugar in thirty-six hours was 1 per cent., and the urine which was marked loaded with diacetic acid and acetone, was free from these bodies within forty-eight hours. That is one favorable case as showing what occurs in children. I think Dr. Herrick has had better results than I have in treating children by this method of dieting. I have had at least ten children upon this diet. I have had children do well with this diet for a few months, in that the sugar would disappear, and when I would put them on a standard diet, shortly after which the sugar would again return. But putting them on the von Noorden diet again the sugar would disappear; putting them on the standard diet again the sugar would return, and I have kept this up in some cases until the von Noorden diet would do nothing, and the patients would go finally into a comatose state and die.

As to other forms of diet, I have tried potato diet in the same way, but not with as good results, because patients will not take as much bulk of potato and butter in my experience as they will of oatmeal.

DR. GEORGE EDWIN BAXTER, of Chicago:—I would like to ask Dr. Herrick to state in his closing remarks the amount of exercise that these patients are allowed during the oatmeal diet; whether they are kept at rest, or are allowed the normal amount of exercise?

Dr. Herrick (closing the discussion):—In answer to the question asked by Dr. Baxter, I will say that, as a rule, exercise does no harm in diabetes. In fact, moderate exercise is rather beneficial, and in putting patients upon this diet I have never restricted them as to exercise unless there is some special reason for it.

I am glad Dr. Billings brought out some of the points more sharply than I did. I am sure, that oatmeal diet is a valuable therapeutic agent. Nevertheless, I am firmly convinced it is likewise a dangerous therapeutic agent, and I would repeat, I do not want to convey the impression that this oatmeal diet cures diabetes. I have seen what I regard as wonderfully favorable results from it in children. I have in mind one little girl of twelve who has lived a year and a half with only occasional traces of sugar in the urine at any time during this period. During that time her father, a physician, has examined her urine every single day. When a child comes into the office, as did this little girl, passing 4,000 c.c. of urine containing diacetic acid; with thirst, and all symptoms pronounced, in spite of the ordinary diabetic diet, the child evidently running downhill, and is put on the oatmeal diet and has the sugar disappear inside of three days and lives for a year and a half, with practically no return of the old symptoms, it means something. To be sure, she is now living on a carefully selected diet that is not rich in carbohydrates, but when we get any such result as that in a child there is surely something to this method of treatment.

I am glad Dr. Billings mentioned some cases of the severer type which do not yield to this diet. I believe firmly that the severest cases will not yield to any diet, and that this is merely a temporary expedient to tide them over a danger period when coma is threatened. I have now under observation a case of this severe type which is resistant to any kind of diet, including the oatmeal diet. She is steadily losing ground, and in a few weeks at least, I expect a fatal result will follow.

One other point in using this diet: It is not wise to stop it too abruptly. There is danger attached to doing that. von Noorden had some disastrous results in his wards at first, by changing too suddenly from the oatmeal to a proteid diet. The change is to be gradual. That is a good rule to follow in changing from one kind of diet to another in all cases of diabetes. So I would say, while I regard this as a valuable therapeutic agent, I believe it is to be used only in selected cases, and we should not employ it with the expectation that we are going to cure diabetes, and further we should look upon it as a therapeutic agent that has in it the possibilities of danger.

BATHS AND EXERCISES IN THE TREATMENT OF HEART DISEASE,*

ROBERT H. BABCOCK, M.D.
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(1) Baths.—When after my return from Germany in 1893 I published the first paper on Nauheim baths that had appeared by an American physician, very little was known in this country either of this now famous resort or of the effect of Nauheim baths on the heart and circulation. So much has been written on this subject since then that now most physicians have a general notion at least concerning them and a

* Read in the Symposium on Therapeutics at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

few possess a practical knowledge of the same. It will suffice, therefore, to describe them briefly as consisting of saline thermal and carbonated baths which range in temperature from about 95 F. for the initial one to 85 F. for those terminating the series. At first the water is mildly saline, approximately 1 per cent. of sodium chlorid and a tenth of 1 per cent. of calcium chlorid, and is not charged ordinarily with carbonic acid. From time to time the percentage of salts is increased until the sodium reaches 3 and the calcium 1 per cent. and the water is carbonated, so that with low temperatures the baths are strongly saline and effervescing.

The chief characteristic of the Nauheim springs is their richness in calcium chlorid and other chlorid salts, as well as in carbonic acid. But in this country the notion seems to prevail that the calcium salt is not necessary, and hence ordinary sodium chlorid or sea salt is used. In the belief that calcium chlorid is highly useful, if not essential, I have never failed to use it, and yet I am frank to confess that the beneficial effect of this therapeutic agent depends not so much upon the exact composition of the waters as on the correct application of the principle underlying their use. For the purpose of charging the baths with carbon dioxid, use may be made conveniently of the tablets and sodium bicarbonate sold at an exorbitant figure under the name of Nauheim Bath Salts or of commercial hydrochloric acid instead of the tablets mentioned. The small amount of sodium bicarbonate and acid varies according to the strength of the bath and the quantity of water required to cover the patient, but for every ten gallons may be said to range from 2 ounces of soda and 3 of acid for weak baths to 32 and 48 ounces, respectively, for strong, cold ones.

The length of time patients remain in the tub varies from six to eight minutes for the initial bath to twenty toward the end of the series. The duration of each immersion must be determined by the patient's reaction, the same as are the strength and temperature of the water. Precise rules can not be laid down, but the character, temperature and duration of each bath must be ordered by the physician after a careful examination of the individual and an inquiry into the patient's reaction and sensations during and following the previous bath. Although there is a certain sort of routine to be followed in the ordering of treatments, still only by judicious consideration of all the conditions attending this mode of therapy can one hope to accomplish gratifying results. Experience is assuredly a requisite to success in this as well as any other method of management.

The principles underlying this form of hydrotherapy should be understood by the physician who would apply it successfully. First, the temperature of the water should not be so high as to make it feel hot to the patient, since hot baths are weakening to the heart. Consequently a higher temperature than 95 F. should not be prescribed, and it is better to begin with 93 or 92 F. if it is thought this can be endured without chilliness. If properly constituted, such a warm or tepid, weakly saline bath

is sedative to a feeble heart and not stimulating. Secondly, such sedative or soothing baths are to give way to cool, stimulating ones only gradually as the heart gains in strength and the general circulation improves. It is only now when positive gain in cardiac power is demonstrable that the baths may be made decidedly cool and stimulating by the higher percentages of CO₂. In a word, Nauheim baths are cool, not hot, and are intended to tone up and invigorate capillary circulation, not to dilate the vessels and by relaxing the skin promote perspiration, as do hot ones. This result is accomplished solely through the cool temperatures, but also by the saline and effervescent character of the waters. The effect is the same as that produced by bathing in the ocean surf, but the application is wholly different, since, cardiac asthenia being present, exertion in the water is strictly forbidden and the patients remain at absolute rest while in the tub.

The *modus operandi* of this balneological treatment has never been satisfactorily determined, but the effects are plainly apparent. The pulse grows slower, stronger and more regular, the area of cardiac dullness diminishes and the impulse acquires greater strength and definiteness. This gain in cardiac power is shown by increased diuresis, lessening of congestions and improved color of the skin. At the same time the heart-tones and murmurs change in one way or another, but always in such a manner as attests augmented myocardial competence. The patient's subjective sense of improvement keeps pace with that in the objective signs and each daily treatment is looked forward to as refreshing and restful.

Wachenfeld, of Bad-Nauheim, has recently published a paper in the *New York Medical Record*, in which he attributes all the benefit of this and other auxiliary forms of treatment to improved metabolism and hence nutrition of the heart muscle. Indeed, he goes so far as to deny the possibility of dilatation of the heart-cavities and to explain the reduction in the area of dullness observed as due to change in position and degree of hypertrophy of the organ. That improved metabolism and nutrition of the myocardium take place goes without saying, but so they do also when benefit follows rest in bed and a course of digitalis, but to attribute the changes witnessed to this factor and this alone seems to me too radical. There must be some mechanical factor at work through the nervous system which as yet escapes our detection.

This balneological treatment is suited to most forms of cardiac and circulatory derangements, in particular myocardial incompetence without endocarditis, and yet valvular insufficiencies of inflammatory origin may receive remarkable benefit. The results in children a few weeks after an acute rheumatic endocarditis have been most striking. As might be expected, stenoses are not so much benefited as are insufficiencies, and should receive very careful and intelligent management by means of this therapeutic agent; a statement not limited, however, to these baths. It is my experience also that cases with chronic fibrous mediastinitis are not likely to be benefited. Pronounced arteriosclerosis likewise is a con-

dition which calls for extreme caution if it does not actually contraindicate the baths. Aneurism and dilation of the aorta, in my opinion, should never be treated in this manner, for, even though improved cardiac power may ensue, the vascular disease can not be improved and it is theoretically possible, nay probable, that the increased hypertrophy of the left ventricle may serve but to distend the sac and augment the damage to the aortic coats. I have known of a case of this kind which received a course of the baths at the hands of a noted Nauheim physician, with, as was asserted, appreciable benefit, and yet the man died suddenly three days after leaving the resort. Lastly, it is my opinion that in cases of extreme cardiac incompetence with extensive dropsy this mode of therapy would better be deferred until rest in bed and medicinal treatment have improved the condition, or only weak baths should be tried cautiously in conjunction with these latter agencies.

(2) Exercise.—These are of two kinds, the so-called resistance exercises and medical gymnastics. The former have been extensively exploited by Theodor Schott and sometimes are spoken of by his name. Their popularity in Bad-Nauheim is by no means so great as in England and the United States. Whether this is owing to the dislike of Schott felt by most of the profession in that resort or to an honest doubt of their efficacy is hard to determine. They consist of slow, gentle movements of extension, flexion and rotation of the extremities and trunk executed against carefully measured resistance by another person trained in the work. A detailed and illustrated description of these movements may be found in various treatises upon the management of heart disease, but, since they are capable in the hands of the untrained of doing far more harm than good, they are rarely available. The effects observed are similar to those of the baths, namely, slowing and strengthening of the pulse with corresponding reduction in the area of cardiac dulness, presumably, therefore, of dilatation, and increased strength of the heart-tones. These results are due, it is claimed, to dilatation of the intermuscular arterioles incident to muscular contractions and consequent unloading of the distended heart.

It is my belief that these resistance exercises are of aid in restoring compensation to greatly dilated and enfeebled hearts. Muscular exercise is an important auxiliary to the heart in maintaining blood-flow, but, this being forbidden or impossible in cases of extreme myocardial incompetence, the driving force of the heart soon becomes unequal to the task of keeping up the circulation. Consequently systolic blood-pressure sinks still lower and cardiac cavities grow still more distended. If now gentle resistance movements are instituted, they promote better venous flow and assist the overburdened heart. It is so easy, however, to do the opposite of what is intended that extreme caution and positive skill are required if benefit is to accrue.

It was the foregoing considerations regarding the desirability of muscular exercise in cases of myocardial inadequacy without valvular disease which several years ago led me to adopt so-called medical gymnastics for

the relief of persons still capable of exercise without serious distress. These gymnastics, like resistance movements, are performed with the aid of a trained assistant who can maintain a close watch on the pulse and respiration and who knows just the sort of exercises that will produce the effects desired.

These medical gymnastics may be divided into passive and active and in both kinds consist of deep breathing movements, rolling, turning, twisting, flexion and extension of the trunk which all have as their object the slowing and strengthening of the pulse. In this respect they produce effects similar to those of resistance exercises, but quite different from those of ordinary physical exertion, since this latter causes acceleration of the heart's action, and when the myocardium is weakened a lowering instead of a rise in blood pressure, and hence is apt to prove injurious.

The investigations of Levin demonstrated that, if these medical gymnastics are to slow and invigorate cardiac contractions, the individual must breathe regularly and synchronously with the various muscular movements, for so soon as he holds his breath the pulse becomes accelerated and the face congested, thus showing at once a strain on the cardiac muscle.

Herein, then, lies the great distinction of these from other forms of active exercise and which renders indispensable the supervision of a trained medical gymnast. Fortunately, we have such a trained expert in Chicago, and to him I am now in the habit of sending such of my patients as are likely to be benefited by these exercises and can afford to take them. These cases are, as already stated, individuals who begin to manifest the symptoms and signs of cardiac feebleness which is generally the result of chronic myocarditis. In a few instances I have tried the effect in cases of valvular disease with beginning inadequacy of poorly established compensation and have been gratified by the results.

It would require too much time to report cases illustrating the good effects of this plan of therapy, and hence these will be stated in only a general way. During and directly after the treatments the action of the heart is slower and stronger than before, while the patient himself is conscious of the benefit by a feeling of ease or lightness in the chest and a general sense of well-being. As time goes on he also notices a reduction in his abdominal girth where this has been excessive and he finds that his breathlessness or palpitation on exertion has left him, so that it has been difficult in most cases to prevail upon the individual to persist in this plan of treatment. It is my custom to keep close watch of the effects on the heart by a weekly examination, and almost without exception I have noted a reduction in the area of cardiac dulness and an improvement in the strength and purity of the heart sounds, with in some instances a disappearance of the systolic apex whiff denoting muscular mitral incompetence.

How these medical gymnastics produce their beneficial result I will not discuss, but will say merely that this appears due to a better circulation in the veins of the extremities and abdomen, together with improved

cardiac metabolism, so that the heart is enabled to discharge its contents with greater force. In most cases a small amount of medicinal treatment with cathartics, vasodilators and strophanthin or digitalin has been employed either in way of preparation for the exercises or to increase their efficacy. But a very large share in the gain made by patients has been due to the medical gymnastics and not to medication.

In conclusion:

1. I feel justified in recommending medical gymnastics as an important part of the management of myocardial incompetence when this is not too advanced.

2. They should be performed only with the aid of a trained assistant who understands the object and kind of exercises to be given and who will maintain close watch upon the pulse and respiration.

3. These medical gymnastics produce results similar to those of resistance exercises and in suitable cases more quickly and powerfully.

4. Individuals with myocardial incompetence should not be allowed to substitute for these medical gymnastics so-called self-resisting movements at home.

5. The effect on the heart should be watched by a physician who can judge of the degree of benefit obtained and how long the exercises should be taken.

92 State Street.

DISCUSSION ON THE PAPER OF DR. BABCOCK.

A Member:—Does parenchymatous nephritis in the presence of myocardial disease, contraindicate the Schott treatment?

Dr. Robert H. Babcock:—I think not unless it be acute with great dropsy. In fact, physicians at Bad-Nauheim pay very little attention to the state of the kidneys in most of the cases they treat. The temperature of the baths and the percentage of salts should be so carefully determined that the patient will not suffer a chill. When the baths are properly ordered, the patient reacts and the skin becomes hyperemic, and there is no internal congestion produced—quite the opposite effect, and I can not see why a chronic nephritis should contraindicate baths under these circumstances.

Dr. Arthur R. Elliott, of Chicago:—Dr. Babcock's paper is a contribution to the best element of the newer treatment of circulatory diseases. A comparatively few decades ago we regarded the circulation from the standpoint of the heart, and in those days the employment of so-called cardiac tonics were the main standbys in the treatment of circulatory diseases. In the light of the newer physiology of the circulation we now know that the treatment of the peripheral field in the circulation constitutes an essential part in the welfare of these cases, so that the use of massage, of baths, of resistive movements, and of the so-called vasodilators, has come into vogue, and they are of immense advantage to these cases. As to the so-called cardiac tonics, while they have a place large enough, it will be shortened in the treatment of these cases, and all very powerful drugs have to be well understood, their pharmacology familiar to the physician employing them in order that they may not act deleteriously. Before their introduction some sixty years ago, and the same exists to-day, many patients with cardiac disease got well under rest and diet, and it is better for the physician to understand these accessory methods, these indirect methods of toning up a weak and degenerated heart rather than depend almost exclusively upon the cardiac stimulants.

Dr. Babcock (closing the discussion):—I believe the time is coming when physicians will recognize that measures of exercise and diet, hygienic measures of all kinds, will largely supersede the mere use of drugs, and that if physicians would give more attention to balneology and to rational exercise, passive and active, in the management of cardiovascular cases, they would be immensely surprised about the results. I believe that if these things were used at an earlier period, physicians would do much in the way of preventing serious cardiac breakdown. I take issue with some men in this country who believe that baths are suitable in cases of extreme cardiac asthenia, with dropsy. It is my custom to treat such cases by the ordinary measures of rest and cathartics and medicinal agencies until the circulatory derangement has been lessened, and then I find these baths of great service. I have found them of inestimable value in the treatment of comparatively recent endocardial lesions in children. I have seen children who, a few months before, had had what was believed to be endocarditis, who came to me with a loud mitral murmur that had completely replaced the first tone, and have seen those hearts reduced in size and the first tone return to the apex, showing that a large part of the leak was due to dilatation which was overcome by this plan of treatment, so that these patients have been sent home greatly improved. It was this observation which led physicians in Bad-Nauheim to say that the Nauheim baths were capable of producing recovery from endocarditis. I think their conclusions were erroneous, but the observations correct as to the benefit of the baths.

SOME PRINCIPLES OF TREATMENT IN CARDIOVASCULAR CONDITIONS.*

JOSEPH L. MILLER, M.D.

CHICAGO.

The cardiovascular remedies may be subdivided into two groups—those which act chiefly upon the heart, digitalis and strophanthus, and those whose chief action is upon the vessels, the vasoconstrictors, adrenalin, caffeine, camphor and strychnin, and the vasodilators, alcohol, nitroglycerin and the nitrites. In making such subdivision we must bear in mind that they are all cardiovascular drugs affecting both heart and vessels, however, in varying degree. In general this class of remedies is indicated where there is imperfect distribution of blood due either to cardiac insufficiency or lack of proper vascular tone. The prevalent idea that digitalis is contraindicated in myocarditis is not well grounded, although we must observe greater care in dosage, and the final results of treatment must, from the nature of the trouble, be less satisfactory than in vascular lesions with good heart muscle. In marked arteriosclerosis or bradycardia the digitalis often is beneficial.

It is unfortunate that a drug which possesses such a desirable physiological action should also have its objectionable features. The chief of these is its variable strength, irritating action on the gastrointestinal tract, and finally its cumulative effects. The physiological activity of the leaf depends upon the soil in which it is grown, the time of year it is gathered, the method of drying and especially the length of time it is kept in the dried state. Not merely does it vary in strength, but the

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proportion of the various active principles is not constant; for this reason digitalis preparations should be standardized physiologically just as the curative serums. It is impossible to overcome its irritative effects and cumulative action and still maintain its physiological activity, as both of these objectionable qualities exist in the isolated active principle. The best means at hand to avoid the cumulative effect is to use a preparation of known strength like the titrated tincture, and then carefully observe the urinary output, character and frequency of the pulse. To avoid its irritating action recourse has been made to subcutaneous and more recently to intravenous medication. When one preparation of digitalis fails to give the desired result we may resort to another form. It can not be too strongly emphasized, however, that the results depend upon the amount of active digitalis and not upon any particular pharmaceutical preparation.

The most important vasoconstrictor remedies are adrenalin, caffeine, camphor and strychnin. These remedies are indicated where we have vasomotor paresis as in shock, chloroform or ether poisoning or the so-called heart failure of the acute infections. Adrenalin is one of the best remedies in shock, as it causes a very prompt rise in blood pressure by its action upon the nerve endings in the vessel wall. The increase in pressure is so marked that the heart is called upon to do an enormously increased work, which may be safely borne by the good heart muscle of the patient in shock but may lead to acute dilatation and serious consequences if the heart muscle is diseased, as is often the case in the acute infectious diseases. As a vasoconstrictor in the acute infections, caffeine holds first place. Passler has shown that in animals, when heart failure had been induced by acute infection, the caffeine caused a more pronounced and prolonged rise in pressure than digitalis. Camphor has practically the same action as caffeine but is less constant in its effects. Strychnin has been extensively used in America as a heart and vasomotor tonic. The rise in blood pressure observed after its administration is due to stimulation of the vasomotor center and in animals is only apparent when given in doses sufficient to produce general spasm.

The vasodilator remedies are used chiefly to reduce hypertension, which is most frequently due to nephritis. It is not improbable that the high pressure in these cases is protective—an effort on the part of the organism to force more blood through the kidney and thus get rid of more waste. The work of Loeb and Strauss would indicate that lowering of pressure in these cases leads to lessened secretion from the kidney. However, when the pressure reaches 200 mm. of mercury the danger to the vessel wall is so great that nitroglycerin or sodium nitrite should be used.

TREATMENT OF ANGINA PECTORIS.

Before leaving the subject of vasodilators it may be advisable to consider the treatment of angina pectoris. Authorities are agreed that anginal attacks are usually due to disturbance in the blood supply of the heart muscle. Autopsy findings in patients who have suffered from

angina show arteriosclerosis of the coronary vessels and numerous areas of focal necrosis in the heart muscle. A few cases have been reported with normal coronaries, and here the attacks have been ascribed to vasomotor spasm of the coronary vessels. Since Brunton's recommendation of amyl nitrite and nitroglycerin for the treatment of an attack these remedies have been generally used. Brunton's observations were based on a single case where sphygmographic tracings showed a marked *pulsus tardus* during the attack, the pain disappearing and the character of the pulse changing after amyl nitrite. A review of the cases where pulse observations have been made during an attack shows that Brunton's patient in this respect was exceptional. In the majority of cases little change has been observed in the character of the pulse during an attack, and this conforms to what occurs in animals after ligation of the coronary artery. Clinical experience has shown that a rather small percentage of cases receive prompt relief with amyl nitrite or nitroglycerin, probably only those cases where vascular spasm plays a rôle. In the group of cases where the attack is due to obstruction by embolus or thrombus two therapeutic problems arise: shall we try to raise blood pressure and thus force blood through the anastomosing vessels to the anemic area, lessening the amount of infarction and by doing this throw increased work on a weakened ventricle; or shall we attempt to lower pressure relieving the heart work, meanwhile increasing possibly the area in which necrosis may occur?

This problem has received our attention during the past year. When the coronary arteries of a dog are ligated just sufficiently to cause slightly disturbed action, the use of adrenalin, while causing a momentary rise in pressure, is followed by dilatation of the left ventricle and death. If we use digitalis instead of adrenalin, the contraction of the ventricle becomes more complete as return to normal occurs, and then additional branches may be ligated without material disturbance. If nitroglycerin be used in place of the adrenalin or digitalis, there is some improvement in the heart's action, but further ligation leads to heart standstill. In other words, a heart under the influence of digitalis allows of much more extensive ligation of the coronary vessels without serious consequences than a heart under the influence of vasodilators. A more complete report on this work is to be published later; these results are suggestive at least that the digitalis group may be indicated in attacks of angina pectoris. In order to obtain the promptness of action required in these digitalis must be given intravenously and subcutaneously. For intravenous medication digitalin in doses of 2 c.c. has been shown to act satisfactorily.

TREATMENT OF ARTERIOSCLEROSIS.

In the medicinal treatment of arteriosclerosis only one drug has any claim of efficiency. Clinicians quite uniformly believe that alleviation of symptoms due to arteriosclerosis follows prolonged use of the iodids. Various symptoms, as angina pectoris, dyspnea, vertigo, become less marked after the continued use of 5 to 10 grains of sodium iodid three

times per day. Huchard believed its good effects were due to its vasodilator action. It has been shown, however, by Boehm and Berg and Stockman and Chartens that they do not lower blood pressure. There is no evidence that it has a specific effect on the arterial changes, excepting possibly those of syphilitic origin. The most logical explanation of its beneficial effects may be ascribed to its lessening the viscosity of the blood. Otfried Müller has shown that when a patient had received a total of about 200 grains in daily doses of 20 grains, decidedly lessened viscosity of the blood could be observed. It is possible that lowering the viscosity of the blood may relieve the heart in a measure of its increased work and in this way prove beneficial to the patient.

DISCUSSION ON THE PAPER OF DR. MILLER.

Dr. James B. Herrick, of Chicago:—It seems to me, such an excellent paper as this ought not to go by without some discussion. We ought to have more papers of this character dealing with common, every-day topics, such as the drugs we give and give so largely empirically. It has been a special pleasure to have listened to the paper of Dr. Miller, who has had such excellent clinical opportunities, and who has possessed the courage and the persistence to do such creditable laboratory work.

I was glad to hear him emphasize the fact that the preparations of digitalis such as we ordinarily use are not always reliable; that we as a profession should strive to have these drugs more accurately standardized. It is very essential for us to have accurate standard preparations of drugs, so that when we are called upon to prescribe them off-hand we know that they are reliable. But we must individualize in our treatment, and realize that what may be of benefit to one patient may in the same dosage be harmful to another. In other words, clinical experience and the study of each individual case can never be done away with, no matter how carefully drugs may be studied in the laboratory, and no matter how carefully the preparations may be made.

I was glad also to hear him speak of the use of digitalis in myocarditis. I know the teaching often has been that it is contraindicated in myocarditis; but certainly in some cases clinical experience shows that the remedy is of benefit here. He spoke of an irregular pulse as one of the evidences of the toxic effect of it, and he included the bigeminal pulse, which has seemed to me one of the earliest indications of the toxic or full effect of digitalis.

It may be, laboratory experiments and further observations may make it appear, as indicated by Dr. Miller, that nitroglycerin and the nitrites are not of as great value as they seemed to be in the treatment of angina pectoris. My experience, however, has been that there is no remedy in many cases—not all cases—of angina pectoris, that acts so promptly and so efficiently. I would not pretend to say what percentage of my cases of genuine angina pectoris have received temporary and usually very prompt relief from the use of nitroglycerin and amyl nitrite, and a good deal of relief from the long continued use of iodid of potassium, but it is no inconsiderable proportion of the whole number.

Dr. Frank Billings, of Chicago:—I feel as Dr. Herrick does, that this excellent paper should not be allowed to pass without some discussion from us. I am glad Dr. Miller has set forth clearly the uses and abuses of these remedies. Probably there are no drugs in the Pharmacopeia more abused than the so-called heart drugs, digitalis, cardio-vascular stimulants, and sedatives and digitalis probably the most of all. This is a drug which is commonly used in infectious diseases to stimulate a heart that is overburdened because of the infectious character of the disease and the toxicity of the blood. This is particularly true in pneumonia.

I want to mention another series of symptoms in addition to those given by Dr. Miller for the toxicity of digitalis. In addition to the symptoms manifested by the pulse and by the heart, there is pallor of the skin, restlessness, associated with drowsiness, and at the same time, there is a condition in which the patient is partially delirious. One sees this frequently where digitalis has been pushed in cases of pneumonia and also in the failing heart of the typhoid fever patient. This delirium, restlessness, and irregular pulse I have noticed in cases that I have seen in consultation. Nevertheless, it is the most useful of all the drugs we have for the heart in its various diseases, when properly used, as Dr. Miller has pointed out.

A word or two more. The experiments made by Dr. Miller show that in artificially produced obstruction of the coronary the use of cardio-vascular stimulants or sedatives is disastrous. On the other hand, agents like digitalis, which increase the energy of the heart muscle, are of benefit. That has been borne out by experience. This adds to the final evidence that is necessary. Why? First of all, every one who has had much experience with people suffering from angina pectoris has found that digitalis, judiciously used, has been of great value in warding off the attack. A second most efficient remedy to ward off attacks of angina pectoris is that sort of exercise which will increase the energy of the heart, and the so-called Schott physical movements do more to ward off anginal attacks than any other one thing because they improve the heart muscle and increase the energy of the heart. Digitalis does the same thing. If, on the other hand, it is pushed too much so as to produce a lessened energy of the heart it would be disastrous, as it has been in the hands of many who have employed it in this disease.

Nitroglycerin, next to digitalis, is one of the most abused drugs we have. It is given by many of us as a so-called heart stimulant, whether it be a vasodilator or vasoconstrictor. I remember once killing a patient with nitroglycerin. I was called in consultation to see this case with a surgeon. The patient was an elderly woman whom I had known for years. She suddenly tripped on the carpet and injured her hip. The surgeon arrived before I did and had made a diagnosis and directed his attention toward the treatment of the hip. As I looked over the woman, I said to him, "There is cerebral shock here, which was the cause of the fall, and the hip trouble was secondary." He said, "You are wrong." The woman was in shock; her pulse was feeble, and he said to me, "I want you to give nitroglycerin hypodermically." I hesitated for a moment, as he was one of my old teachers, but finally gave it, and that woman was dead inside of one minute. Nitroglycerin is just as harmful a remedy, when used injudiciously, as digitalis. What Dr. Miller said of digitalis and other drugs is absolutely true. Digitalis, as dispensed by the majority of druggists in cities and country, is absolutely inert. It is not worth the alcohol that is in it. I hope the time will soon come when the medical profession will not use digitalis and many other drugs that are given to us by the manufacturing chemists unless the printed labels show they are reliable and the doses to be used. The reason so many practitioners cease to have confidence in these drugs is because in many instances they are inert, and the next thing our profession ought to do through the American Medical Association, with its Council on Pharmacy and Chemistry, is to have somewhere in the United States some official body that will standardize our drugs as they are now standardizing sera.

Dr. S. E. Munson, of Springfield:—I want to commend Dr. Miller's paper particularly because Dr. Baxter and myself labored very hard to get up a symposium on therapeutics, and while I do not wish to speak disparagingly of any of the papers that have been read, it is along a particular line that we planned this symposium, and I think you will agree with me that this paper has been particularly interesting to the country practitioner.

I want to ask Dr. Miller one or two questions. I had a case of angina pectoris a few weeks ago in a man who a few weeks preceding had been drinking heavily for some days. He was a man about 65 years of age. I was called

to see him when there were signs of impending death. I had nothing with me but morphia. His pulse was 50, regular, and not of high tension. But it was certainly a marked ease of that character with all the symptoms pronounced. I gave him one-quarter grain of morphia, and with good results. Now, I would like to ask Dr. Miller in regard to the use of morphia in those cases. I would like the doctor to tell us something about the heart tablet so commonly used by dispensers of their own drugs, with the combination of digitalis, nitroglycerin, strophanthus, etc.

I have a case at present of mitral insufficiency in a young woman, twenty-four years of age, who had the lesion for some years previous to her marriage. She was placed in bed for some weeks on account of this mitral lesion, and at the present time is suffering from pelvic abscess. Two or three days ago her pulse rate was 140 and temperature varied from 102½ to 103. I would like to ask Dr. Miller as to the use of digitalis in a case of that character.

Dr. John F. Page, of Eureka:—Speaking of the unreliability of digitalis, I would like to say that while the ordinary preparations found in drug stores are generally inert, as has been stated, I have not found the preparations of Squibb's to be so. A few years ago I had the pleasure of making the acquaintance of the elder Squibb and a nobler man it has never been my lot to meet. It is possible, however, that his successors have not maintained the high standard that he established.

Dr. Miller (closing the discussion):—In reply to the question asked by Dr. Munson, I will say that tachycardia itself is not necessarily an indication for the giving of digitalis. Increased cardiac activity tires out the heart, and it may be followed by dilatation. In these cases of tachycardia digitalis may be indicated and may be of benefit, in quieting down the heart and in rendering the systole and diastole more complete, actually lessening the amount of work which is done by the heart in a given period of time.

In regard to the heart tablet referred to by Dr. Munson, we believe that all of these group of remedies, such as strophanthus, digitalis, etc., have the same effect, but of this group digitalis is by far the best, and if we are sure we have a good preparation, it is the drug to use. In referring to the other members of the group, it would seem to me that the combination of strophanthus and digitalis is unnecessary. A discussion of combining nitroglycerin with digitalis would take us too far. It is enough to say, the predominating effect will depend upon the amount of the drugs given. Thus we get the effect of nitroglycerin immediately, passing of in one-quarter to one-half hour, in ten or fifteen minutes. After administered we get the effect of digitalis, which continues for hours. There is nothing rational in the administration of nitroglycerin and digitalis at the same time.

The use of morphin in angina pectoris is also an interesting question. We tried it experimentally on animals, knowing that morphin is used frequently in the treatment of angina pectoris, but our experiments on animals do not warrant us in drawing conclusions from them and transferring them to the human, inasmuch as we use morphin for the relief of pain. In animals anesthetized, there is no relief of pain by morphin. We found, however, that our animals died very promptly after ligation of the coronary vessels if they received morphin. Moderate doses of the drug hastened materially the death of the animals after obstruction of the coronary vessels.

In regard to Dr. Herrick's statement of the relief of angina pectoris by nitroglycerin, I wish to say that if we could get the opinions of all of the men here present as to the number of cases of angina pectoris which they have seen promptly relieved by the use of amyl nitrite or nitroglycerin, it would prove something. I have never seen a case of angina pectoris which received immediate relief from these agents. It is true, the pain in almost every case gradually subsides. We have the statement of Rhomberg who has had a very extensive experience. He says that in the height of an attack of angina pectoris nitroglycerin does not do much if any good, and he has only seen one patient who has

taken amyl nitrite during the height of an attack who was relieved. We have also a similar statement by Leyden, who has seen but one patient who experienced prompt relief from pain due to angina pectoris from the use of amyl nitrite.

Until 1884 angina pectoris was described and considered in books on the nervous symptom as a neurosis, and in its treatment nitroglycerin was recommended. Later we still hung on to our treatment by nitroglycerin, although the actual etiology of the disease was found to be different.

THE ENERGY VALUE OF FOODS.*

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I. ENERGY AND MATTER.

Life is a special and complex manifestation of energy or force. While we are not inclined to call in question or to debate the existence of manifestations of a strictly spirit life, wholly divorced from, if ever linked with, material or corporeal forms, it is still a patent fact that the life which it is our province to study and our duty to foster and protect is *intimately linked with matter*—it is a manifestation of the energy which resides in the matter. Just how energy and matter are associated is a problem with which the physicists are still struggling. A general idea of the relation may be gained by a few simple examples. Let one ignite a match. When the stick burns we see at first a simple oxidation of the paraffin with which the end of the match stick is saturated. This paraffin C_nH_{2n+2} requires two atoms of oxygen for each atom of carbon, and one atom of oxygen for each two atoms of hydrogen in its oxidation; $C_nH_{2n} + (3n+1)O = nCO_2 + (n+1)H_2O$; in short, the paraffin oxidizes to carbon dioxide and water. As the wood burns we have also an oxidation of its elements: $(C_6H_{10}O_5 + 6O_2 = 6CO_2 + 5H_2O)_n$. Briefly stated, the oxidation of the wood yields carbon dioxide and water.

For the present discussion we are especially interested in the energy which is liberated in the form of heat and light as the complex paraffin or wood burns. We have found that if we wish heat we have only to oxidize paraffin or wood or coal or other complex carbonaceous substance to liberate a known, definite quantity of the energy required. While the carbonaceous matter oxidizes it changes its constitution—its molecular structure—from complex to simple; the paraffin candle, composed principally of hexadecane, $[CH_3.(CH_2)_{14}.CH_3]$ appears as $16CO_2 + 17H_2O$ after oxidation; while wood, even more complex in molecular structure, appears in the simple combustion products, CO_2 and H_2O . Whenever a highly organized, complex product, composed largely of carbon and hydrogen, is oxidized it breaks up into a large number of simple molecules, and in the breaking up liberates energy. This is a fundamental law of chemistry.

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The converse of this law is also true. Whenever simple compounds are built up into complex ones, energy is required to build up the combination, and this energy becomes latent in the complex molecule. For example, carbondioxid gas and water are taken up from the atmosphere and soil by green plants, and in the leaves of these green plants are combined to make dextrose ($C_6H_{12}O_6$). The energy which is required to make this combination comes from the sun. That accounts for the fact that the green plants require sunlight in order to build up new matter. From the dextrose thus formed in the leaves of green plants there is built up starch, cellulose, wood tissue, and fats. With the addition of certain nitrogenous substances, protoplasm is built up. While all this important constructive work is accomplished through the agency of living protoplasm, assisted by various enzymes, the energy involved all comes from outside sources, and is made latent in the complex structures built up by the protoplasm.

These complex structures thus built up by plants, namely, dextrose, starch, fat and protein, serve as foods for animals. Animals eating these substances, either directly or after partial intermediate elaboration on the part of other animals, assimilate them into their tissues, where they are oxidized and broken down into carbondioxid gas, water and other simple compounds. Thus we find in general: *plants build up and animals tear down matter*. Plants receive energy from without and make it latent in the substance which they build up. Animals use these substances for food, thus receiving the latent energy, which they release when they oxidize the substances.

II. THE CLASSIFICATION OF FOODS ON THE BASIS OF THEIR DIETETIC VALUES.

A food is an article of diet composed of one or more foodstuffs. A foodstuff is a chemical compound capable of nourishing the body. The body is nourished either by building up, or by repairing cell structure, or by furnishing the cell substance with materials whose oxidation may furnish energy for the life processes. It is understood that a substance, to be a real food, should not be injurious in its unoxidized condition. Fulfilling the requirements of this definition are several classes of chemical compounds. Water is a food, absolutely essential to all active living organisms. Certain mineral salts—sodium chlorid, sodium carbonate, sodium phosphate, calcium phosphate, and several others—are also foods and essential. While these inorganic foods are absolutely essential, they are usually received in sufficient quantities, incident to the choice of the organic foods and the usual beverages, so that it is seldom necessary to give any serious consideration to them in the dietary. Furthermore, for our present discussion they do not represent energy. Only the organic foodstuffs represent energy. The organic foodstuffs may be subdivided into two general classes: carbonaceous and nitrogenous.

The carbonaceous foodstuffs are the body fuels and are composed largely of carbon and hydrogen, and their oxidation yields carbon dioxid

gas and water only. The carbonaceous foodstuffs may be divided into two classes, namely, carbohydrates (sugars and starches) and fats. The *nitrogenous foodstuffs* are those which are essential in the growth and repair of the cellular structures of the body. No protoplasmic structure can be built up except through the use of the protein foods. While protein foods are all ultimately from vegetable substances, a considerable portion may be immediately from animal sources.

As stated above, foods are composed of one or more foodstuffs. Bread is a food composed of starch, small quantities of sugar and fat; and protein represented particularly by the gluten. Besides these organic foodstuffs, bread also includes various food-salts and a varying amount of water. In a similar way, milk is composed of protein (casein), carbohydrate (lactose) and fat (cream), together with various food-salts and water.

Organic foods are subject to classification on a dietetic basis into the following classes:

A. CARBONACEOUS FOODS.

This class includes all those foods in which the carbonaceous foodstuffs predominate and may be subdivided into the following groups:

Group 1. Sugars and Syrups, of which common examples are cane sugar, and glucose, maple sugar and various syrups from these several sugars.

Group 2. Starches, represented in the markets by tapioca, sago and corn starch.

Group 2. Roots and tubers, represented in the market by white potatoes, sweet potatoes, parsnips, turnips, radishes, etc. All of this class are rich in salts, especially the salts of potassium. The nutrient portion of potatoes consists largely of starch, while in the other vegetables enumerated it consists chiefly of sugar.

Group 4. Green vegetables, including such market articles as celery, cabbage, cauliflower, spinach, asparagus, lettuce, etc. These green vegetables used mostly "in season" represent very little nutriment, but serve rather to sharpen the appetite for heavier foods.

Group 5. Fruits. While such preserved or dry fruits as raisins, figs, and dates represent a high percentage of sugar and, therefore, may afford an important source of energy, many of the fruits like the citrous fruits, currants, strawberries, peaches, pears and apples contain a very much smaller percentage of sugar and practically no other nutrient substances. These acid fruits, as they may be classified, are more important as adjuncts to the diet than as sources of energy, and their free use may be exceedingly important in regulating the bowels and kidneys.

Group 6. Fats and Oils. In this group we have the heat producers *par excellence*. So far as we know, their sole purpose in the body is to furnish energy, which they do in larger proportion than is the case with any other class of foods.

B. CARBONITROGENOUS FOODS.

These foods are so called because they contain too large a proportion of nitrogenous foodstuffs to be classified as carbonaceous and too large a proportion of carbonaceous foodstuffs to be classified as nitrogenous. In other words, they include groups of foods which might serve for the complete nourishment of an animal for a long period of time. These foods may be grouped under several heads.

Group 1. Cereals, including innumerable products from the following grains: wheat, corn, rice, oats, rye and barley. From these sources are formed various breads, biscuits and prepared foods, such as the cereal breakfast foods in endless variety, and are most important sources of energy because of their large proportion of starch and appreciable proportion of fats. They are also important body builders, because of their large proportion of proteins.

Group 2. Legumes, including beans and peas, which contain, besides a large amount of starch, so large a proportion of proteins that they may be used as one of the important dietetic sources of proteins, so important that they may frequently take the place of meat or eggs in the menu.

Group 3. Milk. Milk is Nature's food for young mammals. So important is this food that it is used practically universally in the dietaries of all the higher races of mankind. In this food more than any other food known to man the proteins, carbohydrates and fats are so balanced as to make a perfect food.

C. NITROGENOUS FOODS.

Group 1. Eggs. While milk is Nature's food for young mammals, eggs are Nature's food for young birds. However, carbohydrates are wholly lacking in eggs, and the fats are so much less in quantity than proteins that we are justified in classifying eggs as nitrogenous food. They make a most important source of proteins in the dietary, besides lending themselves to numerous preparations unmixed. Furthermore, eggs possess the rare advantage of lending themselves to innumerable combinations with other foods, with cereals, milk, fats, etc., etc.

Group 2. Meats. We generally rely upon the lean meat of animals for our supply of protein, though, as already stated above, a most important supplementary source for proteins must be recognized in eggs, legumes, milk and its products, and the cereals. So important are these sources of proteins that they may serve as the sole source, leaving out meat altogether. Such a diet is called "ovo-lacto-vegetarian."

The variety which is given by the addition of meats to the diet would justify it, however, even if there were no other reasons favorable to it. Liebig said: "It is certain that three men, one of whom has had a full meal of meat and bread, the second cheese or salt fish (and bread), and the third potatoes, regard a difficulty which presents itself from entirely different points of view." The aggressive peoples of northern Europe and the western continent are the meat-eating people of the world. Be-

sides overcoming the very great difficulties of a northern climate, they have outstripped their vegetarian competitors in almost every field of human endeavor. Just what gives to a meat diet this subtle influence is a problem. That the influence exists is not a matter of controversy. In its extremes we see the difference in meat and vegetable diet wrought upon the lion and the ox; the vegetarian, though strong, is slow, clumsy and lazy; the meat-eater quick, graceful and alert. The author does not wish to be understood to approve of an exclusively meat diet. Man is omnivorous. If meat makes too great a proportion of his diet, disturbances of nutrition are almost sure to manifest themselves. Generally speaking, Americans and Englishmen eat too much meat.

III. THE RELATION OF DIETETIC VALUES TO ENERGY OR HEAT VALUES.

As stated above, at the beginning of this article: first, life is a manifestation of energy; second, energy is intimately associated with matter; third, the matter which we take into the body as food is rich in latent energy; fourth, foods are chosen because of the energy or nourishment which they contain. If we accept these premises we are led unavoidably to the conclusion that *the organic foods possess a dietetic value in direct proportion to the latent energy which they represent*. This general principle requires some modification in its application to the nitrogenous foods, but holds absolutely for the carbonaceous foods.

When the engineer chooses fuel for his locomotive he reckons the value of that fuel as locomotive fuel on a basis directly proportional to the heat energy which is latent in it. In a similar way man, in his choice of body food, chooses at least his carbonaceous or his fuel foods on the basis of the heat energy which they represent. When we consider, however, the nitrogenous foods, we are compelled to modify this basis of calculation. The nitrogenous foods are used in the body for repair and for growth. Up to a certain minimum quantity they are of paramount importance. In fact, their importance is so great that it can not be measured in heat units, or in dollars and cents, because life depends upon the continuous ingestion of a certain quantity of these nitrogenous foods. While this quantity is not great, in fact, is very much smaller than it has been supposed until recently to be, still its importance is paramount. There is another reason why its dietetic importance is not measurable by its heat value, and that is that the body is unable to extract all the energy from the nitrogenous food. One gram, for example, of nitrogenous food, represents 5.75 calories per gram, dry weight, while the animal body is able to extract from this amount only 4.1 calories, thus leaving 1.65 calories in such nitrogenous compounds as urea, uric acid, xanthin bodies, etc.

Summarizing: *The relation of dietetic values to heat values is direct and mathematically proportional in all carbonaceous foods, and incidental and secondary in all nitrogenous foods.*

IV. METHOD OF DETERMINING ENERGY-VALUE OR CALORIES.

For a long period of time it has been customary to determine the latent energy in foods and fuels through the use of the *calorimeter*. Many forms of calorimeter have been devised, one of the more recent and valuable forms being that devised by Haldane and his associates and used in their extensive observations on foods. It consists of two chambers standing side by side, and provided with heavy non-conducting walls, within which there is a dead-air space. The dead-air space of one chamber is connected to the dead-air space of the other chamber through the medium of a mercury manometer. The rise of mercury in one limb of the manometer indicates a fall of the pressure, and, therefore, of the temperature, in the corresponding chamber. In one of the chambers the material to be tested, carefully weighed out and dried, is oxidized. In the other chamber a jet of hydrogen is oxidized. Care is taken, through either automatic thermostatic devices or by watching the manometer, to burn in the hydrogen chamber just so much of the hydrogen as is required to maintain the manometer at the zero point, that is, to maintain the same temperature in the two chambers. At the end of the observation one calculates the amount of the hydrogen consumed from the original amount minus what is left, and knows at once how many calories of heat have been liberated in the other chamber through the oxidation of the food or fuel therein. This method has been of the greatest commercial value in determining the fuel values of coal from various sources, and determining the food value of various foodstuffs.

The *calorie* is the amount of heat required to raise the temperature of one kilogram of water one degree Centigrade, or one pound of water 4° F.

V. HEAT VALUES OF VARIOUS CLASSES OF FOODS.

Applying the above described method to starch, we find that 1 gram of dry starch yields 4.18 calories of heat; a gram of cane sugar yields 4.176; a gram of dextrose, 3.94, and a gram of lactose, 4.16. Considering the preponderance given to starch and cane sugar in the diet, it is customary to allow for carbohydrates in general the heat equivalent of 4.18 or 4.2 calories per gram, dry weight.

As to the fats, it is found that a pure fat, like olive oil or lard, yields 9.68; fat tissue, like bacon or suet, yields 9.4; while butter yields 7.26. The preponderance of butter and tissue fat in the dietary leads most dieticians to use the factor 9.4 calories per gram.

As to the proteins, one gram of dry lean beef represents 5.65 calories; one gram of dry casein 5.85; a gram of vegetable protein, 5.5. Of this energy 1.65 calories per gram is unavailable to the animal body, leaving available 4.1 calories.

To determine the energy which any food represents, it is only necessary to find by analysis the amount of protein or fat and of carbohydrate which the food contains and to multiply these amounts by the heat equivalent as given above.

For example, oatmeal contains 7.6 per cent. of water, 15.1 per cent. of protein, 7.1 per cent. of fat, 68.2 per cent. of carbohydrate and 2 per cent. of salts. One hundred grams of oatmeal represent in energy:

From protein	15.1 × 4.1 =	61.91
From fat	7.1 × 9.4 =	66.74
From carbohydrate	68.2 × 4.18 =	285.07
Total energy per 100 grams.....		413.72

Of very great practical value is a table showing the percentage composition of the more common foods. These analyses are published in government bulletins from the experiment stations and may be had for the asking:

COMPOSITION OF VARIOUS FOODS OF CLASSES A AND B.

Food.	Water. Per cent.	Proteins. Per cent.	Fats. Per cent.	Carbo- hydrates Per cent.	Salts. Per cent.	Energy in Kilo- Calories per lb.
Sugar	2.0	...	..	97.8	0.2	1,820 calories.
Syrup	43.7	...	..	55.0	2.3	1,023 calories.
Tapioca .....	...	...	..	...	..	....
Cornstarch	2.0	...	..	97.8	0.2	1,820 calories.
Rice	12.4	7.4	0.4	79.4	0.4	1,630 calories.
Macaroni	13.1	9.0	0.3	76.8	0.8	1,406 calories.
Flour	12.5	11.0	1.0	74.9	0.5	1,644 calories.
Cornmeal	15.0	9.2	3.8	70.6	1.4	1,645 calories.
Oatmeal	7.6	15.1	7.1	68.2	2.0	1,850 calories.
Beans or peas.....	12.6	23.1	2.0	59.2	3.1	1,615 calories.
Potatoes	78.9	2.1	0.1	17.9	1.0	375 calories
Onions	87.6	1.4	0.3	10.1	0.6	225 calories.
Cabbage	92.0	2.1	0.6	5.5	1.1	155 calories.

COMPOSITION OF BREADS AND CRACKERS (CARBO-NITROGENOUS).

Food.	Water. Per cent.	Nutrients. Per cent.	Proteins. Per cent.	Fats. Per cent.	Carbohydrates. Per cent.	Salts. Per cent.
Wheat bread ...	32.5	67.5	8.8	1.9	55.8	1.0
Graham bread ..	34.2	65.8	9.5	1.4	53.3	1.6
Rye bread	30.0	70.0	3.4	0.5	59.7	1.4
Soda crackers...	8.0	92.0	10.3	9.4	70.5	1.8
Graham crackers.	5.0	95.0	9.8	13.5	69.7	2.0
Oatmeal crackers.	4.9	95.1	10.4	13.7	69.6	1.4
Oyster crackers..	3.8	96.2	11.3	4.8	77.5	2.6
Graham bread nutrients. ...	...	100.0	14.8	22.2	83.7	To compare the nutrients of Graham
Typical diet nutrient. ...	...	100.0	17.5	8.4	73.8	bread with a typical diet.

COMPOSITION OF MILK AND ITS MORE IMPORTANT PRODUCTS.

Food.	Water. Per cent.	Proteins. Per cent.	Fats. Per cent.	Sugar. Per cent.	Salts Per cent.	Analyst. Per cent.
Milk	86.8	4.0	3.7	4.8	0.7	Parkes
Skimmed milk	88.0	4.0	1.8	5.4	0.8	Parkes
Cream	66.0	2.7	26.7	2.8	1.8	Parkes
Cheese	36.8	33.5	24.3	..	5.4	Parkes
Butter	6.0	0.3	91.0	..	2.7	Parkes

The composition of some of the more common meats (including fish and "shell-fish") :

Food.	Water.	Proteins.	Fat.	Carbohydrates.	Salts.
Beefsteak	74.4	20.5	3.5	....	1.6
Fat beef	51	14.8	29.8	....	4.4
Lean beef	72	19.3	3.6	....	5.1
Fat mutton	53	12.4	31.1	....	3.5
Lean mutton	72	18.3	4.9	....	4.8
Veal	63	16.5	15.8	....	4.7
Fat pork	39	9.8	48.9	....	2.9
Bacon	15	8.8	73.3	....	2.9
Smoked ham	27.0	34.0	36.0	....	10.0
Calves' liver	72.3	20.1	5.6	....	1.5
Poultry	74.	21.	3.8	....	1.2
Whitefish	78.	18.	2.9	....	1.
Canned salmon	63.6	21.6	13.4	....	1.4
Crabs	84.	15.	1.0	....	2.
Oysters	87.	6.	1.2	3.7	2.

The energy value of foods may be calculated from their percentage composition. The calculated values should be tabulated for reference. From the percentage composition determine the calories in 100 grams, as illustrated above for oatmeal.

To find the calories in one ounce avoirdupois multiply the total calories in 100 grams by .284.

To find the calories in one pound multiply the number per ounce by 16. Having thus calculated the calories, drop all decimals, as these are within the natural errors of the weighing.

THE ENERGY VALUES OF SOME COMMON FOODS.

The Food.	Calories per 100 grams.	Calories per Ounce.	Calories per Pound.
Wheat bread	286	80	1,280
Oatmeal	414	117	1,880
Cornmeal	367	103	1,648
Beans or peas.....	358	100	1,600
Potatoes	84	24	382
Milk	57	18 (⅔ fl.)	(pt.) 288
One egg	73	....	....
Beefsteak	115	32	512
Bacon	434	123	1,973

DISCUSSION ON THE PAPER OF DR. HALL.

Dr. H. I. McNeill, of Newman:—I think we are very apt to neglect papers on the scientific side of medicine, and I feel that I appreciate the value of this department as I did not when I was a student, because so often the general practitioner is asked as to the value of different foods, and it is then he recalls his physiology; it is then he must go back to student days and consider what we were taught at that time. This is a part of the practice of medicine in which we are seriously ignorant, and we must have our attention called to this subject by such scientific papers as this, before we can appreciate its full value, and we must depend upon scientists or physicians who are working in the laboratories to set forth this part of medicine. We must turn our attention to them for help because the general practitioner has no opportunity for experimental work and to demonstrate the values of foods. I appreciate this paper very much because of its practical value to the general practitioner.

Dr. Thomas Grant Allen, of Chicago:—I think most of us would like to have had Dr. Hall devote a little more time to the energy side of food values. We are indebted to him for calling our attention so specifically and clearly to the absolute dependence of energy on food, and, furthermore, to the admirable illustration he gave of the complexity of food and the simplicity of the end products of digestion and metabolism.

A few years ago, at the suggestion of Dr. Babcock, I made a study of food values, and the thing that most completely attracted my attention then, and has been of great value to me ever since, was the fact that foods are just two things—energy and proteid—and that accordingly its main functions are the production of heat and energy and the building and repair of tissue. Without the proteid we can not have a drop of digestion secretion or of any secretion for that matter. We can not add an ounce of muscle or a single living cell. The proteid is the first and by far the most important part of our food. The fats and carbohydrates and all the rest we may consider an energy. That has been of the greatest value to me in infant feeding. Infant feeding, until the present time I may say, has very largely been a confusion of the percentages of fats, proteids, sugar, and what not. But it is beginning to get clear in the minds of most pediatricians of to-day that food is proteid and energy. In the feeding of adults we have had for years certain accepted standards for the amount of daily energy and proteid the food should supply, but no such standards for infants until recently. Heubner only a few years ago having established a standard for the energy not to exceed 45 calories per pound per day, while last year I attempted to establish a proteid standard for babies, placing it at four to six hundredths of an ounce per pound.

Chittenden, who was referred to by Dr. Hall, has caused us to revise our ideas as to the amount of proteid required for an adult. Voit, whose standard has been followed for years, recommended about four ounces of proteid per day for an average man at moderate muscular work. Chittenden says we can get along with 60 grams or two ounces, and I think his experimental work has been very convincing.

I wish to call attention first, to the fact that we probably have been feeding adults too much proteid and infants too little and that the tendency to-day is to lessen this daily amount for the adult and increase the amount for the infant, and second, to the seeming disproportion between the standards for infants and adults. The standard for adults has been about 22 calories of energy per pound, and about .026 ounce of proteid per pound. Chittenden would reduce this proteid to about .013 ounces per pound. This is less than half that required for an infant, but it is right, since the baby has proportionally less surface from which heat radiates and its metabolic activities are greater. It requires proportionally more proteid because it is rapidly taking on new tissue while the adult has to rehabilitate his.

In the classification of force-furnishing foods, Professor Hall has omitted alcohol. A few years ago Dr. Stewart, Professor of Anatomy in Bellevue Medical College, had typhoid fever. While it was at its height he consumed immense quantities of whiskey, apparently with marked benefit. I believe in certain infectious diseases like this a moderate high temperature controls germ production, and have no doubt in cases like this heat was derived from the alcohol, which otherwise would have been obtained at the expense of the body. I understand this is a favorite subject with the Professor, and do not think it should be omitted from the force furnishing stuffs.

Dr. Thomas M. Aderhold, of Ziegler:—I got one practical point from this paper, especially in treating patients whose finances are in a low condition. They often ask us regarding their diet, most of them being laboring people, and it is of great value to us to be able to know what we can tell them in order to

reduce the amount of meat which they eat, which is an expensive food, and increase the amount of corn products and wheat which are highly nutritious in producing that form of energy which they need. Many of them eat more meat than their excretory organs can properly eliminate, and by regulating their diet, in this way we can lessen the expense to them. Especially is this the case where we add to the meat an excess or a moderate amount of alcohol. By advising them to omit alcohol and urging them to eat more corn products and wheat, we will get much better results.

Dr. J. M. G. Carter, of Chicago:—I want to call attention to one point which Dr. Hall mentioned and which is of special interest to me, namely, the amount of proteid required for holding the human body in good condition. As he said, we have been told in the past that we should have at least a minimum of 150 grams of proteids, while it has been lately thought that 60 grams, according to the experiments that have been made, are quite sufficient. Along that line I want to mention some observations that I have made during the past year and which have been very interesting to me. Several rather fleshy men, some of whom were rheumatic or thought they had rheumatism, as they had pains and aches affecting them occasionally, had spoken to me in regard to the matter and I have told them that if they would adopt the habit I did of not eating too much meat it might be a good thing for them. They were probably eating too much meat or too much food of that character, and I suggested that they omit meat food at noon; that they take only two meals a day, breakfast and dinner. This is the particular point I wish to call attention to. Those gentlemen who have adopted that plan, who are above par as regards weight, have been free from their rheumatic pains and aches. They feel better, have reduced their weight very little, but have been in a very much better condition for work.

Dr. Thomas W. Bath, of Bloomington: With reference to the practical application of these foods in relation to how much energy they can give an individual in his work, I will say that the American people earn more money than any other people on earth, and consequently a larger number of them eat more porterhouse steaks than any other people, and we are living under a great deal of delusion as to food values.

About fourteen years ago the *Chicago Tribune* came out with a sort of a ridiculous editorial prior to the China-Japanese war. It made certain predictions as to the outcome of this war. Reference was made to the Chinese and Japanese as rice-eating people, and the preponderance of evidence seemed to point to the fact that the Chinese would wallop the Japanese in time. But the trend of the article was to ridicule the prowess of a rice-eating people. I have been to Japan three or four times and have seen what the Japanese can do. Having served as army surgeon for three years, I had an opportunity to see the relative value of those who subsisted on a vegetable diet, and those of our own fellows who partook largely of a meat diet. We know that peas and beans contain about 22 per cent. proteid matter, while meat, such as beefsteak, contains about 26 per cent. It has recently been said by the Chinese minister in this country, having subsisted on a strictly vegetable diet for so many years, they were enabled thereby to rid themselves of divers diseases to which human flesh is heir, such as a uric diathesis, gout, rheumatism, etc.

Now, I am of the opinion that as this country grows older, physiologists will see need for application of practical conditions. For instance, instead of consuming nearly all the products of our plains in the shape of great herds of cattle and hogs, we will direct our attention to the energy in the proteids of other articles of food. For instance, what can corn-bread do for one? What can wheat bread do for one, and how much energy can we get out of it by eating two meals a day? The majority of us eat too much. According to our financial

condition, we may eat ham and eggs for breakfast, a porterhouse or loin steak for the noon meal, and then a piece of bacon or some boiled or poached eggs for supper, or a piece of roast beef. When we eat three or four such meals a day we get morose. We find the urine contains xanthin, kreatinin, and uric acid crystals. The tongue is coated, and the individual gets up in the morning with a nut brown taste in his mouth, and he feels somehow as if things are not just as they should be. In short, we eat too much.

Dr. Hall (closing the discussion):—I want to pay a tribute to Dr. Allen by saying what he wanted to say if he had had time. He was bringing out a very important point regarding protein in infant feeding. I happen to know what Dr. Allen's theory is. It is in harmony with the biology of the infant. The infant is an animal, and we have to view it as an animal, before we know how to feed it properly. It is not a question of sympathy, but what the infant needs in order to build up its tissues, and it must have protein for this purpose. While its activities require a smaller proportion of protein to be used as *repair* substance, it has an incomparably greater proportion in requisition for *building up new tissue*. It is building up new tissue at the rate of from half a pound to a pound a week during a number of months of its earlier life, and it must have protein for that purpose. That is what Dr. Allen intended to bring out.

As to the force or energy of alcohol as a food, I think it must be clear to those present why I should leave out of discussion the mooted question of alcohol. Two sides of the question have been presented this afternoon, each side having been very forcibly presented, one man saying that "a physician who had typhoid took alcohol at the height of the fever. It made him feel fine, and he got along nicely." The other stated that he, in his practice, uniformly advises his patients or constituents not to use alcohol. Why? He knows that the miners in one of the mining districts of the State use alcohol freely, and that one of his functions is to urge these people to use less alcohol, and he tells them why. His experience has been that in proportion to the smaller use of alcohol does their health improve, and likewise in proportion to the smaller use of meat their health improves, so that he urges a more abstemious use of meat and alcohol. Do you wonder, then, I did not, owing to the short time at my disposal, plunge into this mooted question of alcohol?

So far as my theories and beliefs are concerned, based on physiological grounds, I do not look upon alcohol as a food. Alcohol is oxidized in the body, and I do not say alcohol can not be used therapeutically in certain fever cases with satisfactory results, but for the well man, I certainly should not include alcohol in his list of foods to use as a regular part of his diet. The most exhaustive list of foods ever published in this country was published under the supervision of W. O. Atwater in his work for the Government Experiment Stations, and *alcohol does not appear in his list of foods*.

Two or three of the speakers have reinforced my position as to the strong advisability of a decrease in protein diet. In other words, in plain every-day language, Americans are eating too much meat. The reason has been graphically set forth by a previous speaker when he said they eat too much meat because meat is so plentiful in this country. It is a rich man's country, and the over-throw of meat as a steady diet is a blessing to mankind the world over. The reason the Japanese do not eat meat is because they can not afford it. I do not know that meat will be so expensive in this country as to preclude its use as a staple diet, but from a strictly hygienic standpoint, it would be better for Americans if it were. We are eating too much meat. It is one of the most precious foodstuffs we have, but like all other precious things there is a limit to the amount of it to be taken, and when you reach that limit, then stop. It is one of those articles of food that is invaluable up to the point where you get the nitrogenous equilibrium, and when you pass that point, the quicker you stop the better it is for the hygiene of the individual.

Symposium—Multiple Sclerosis.

THE ETIOLOGY AND PATHOLOGY OF MULTIPLE SCLEROSIS; WITH REPORT OF TWO CASES WITH AUTOPSY.*

PETER BASSOE, M.D.

CHICAGO.

HISTORICAL.

In Cruveilhier's Atlas, published in 1835 to 1842, the first clinical and anatomical description of this disease is given. This author distinguishes between two kinds of eord degeneration, one involving the whole length of the tracts, the other occurring in "islands." Frerichs, in 1849, was the first to write a collective article and to make the clinical diagnosis of "insular" sclerosis. In 1856 Valentiner collected all the known cases to the number of fifteen and tried to define the clinical pic-



Fig. 1.—Case 1. Horizontal section through optic chiasm. (From Weigert-Pal specimen.)

ture, but failed to mention the cardinal symptoms. This was first done ten years later by Charcot, who also was the first to recognize the salient morphological feature, the persistence of the axones in the sclerotic patches while the myelin sheaths are destroyed. Since the time of Charcot, Oppenheim, Uhthoff and Strümpell have been prominent among those who have added to their knowledge of this disease. The researches of Bielschowsky with his new impregnation method for the demonstration of neurofibrillæ have advanced our knowledge of the finer histology and fully confirmed the correctness of Charcot's observation of the persistence of the axones.

FREQUENCY.

It is peculiarly difficult to estimate the frequency of a disease in which the diagnosis offers so many difficulties. It is, perhaps, safe to say that it is much more frequent than commonly supposed and that the

* Read at joint meeting of the Chicago Medical and Chicago Neurological Societies, April 1, 1908.

apparently much greater frequency of the disease in Europe, particularly in Germany, is not real. The statement of Müller is of great interest, that at the Erlangen clinic, the material of which largely comes from

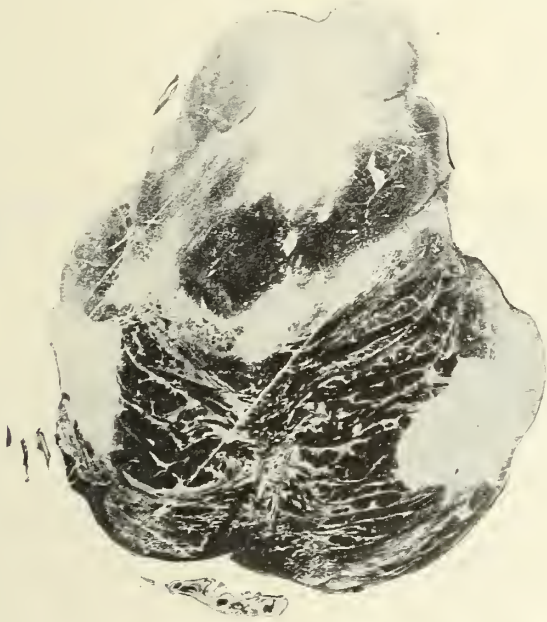


Fig. 2.—Case 1. Pons, upper portion. (From Weigert-Pal specimen.)

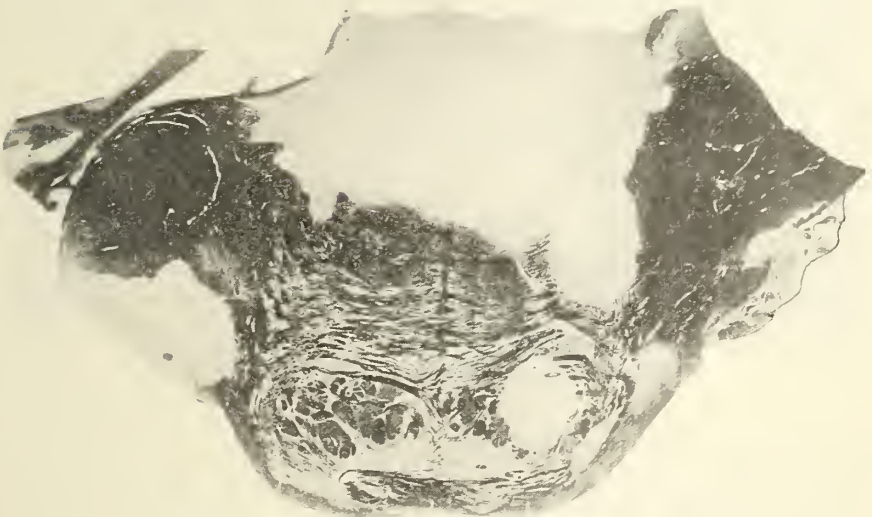


Fig. 3.—Case 1. Pons, lower portion. (From Weigert-Pal specimen).

the rural population, the number of cases of multiple sclerosis exceeds that of cerebrospinal syphilis and that of syringomyelia and approaches that of tabes.

ETIOLOGY.

The onset in over 40 per cent. of the cases is between the ages of 20 and 30 years, and in 75 per cent. between 20 and 40. The disease is rare in childhood and old age. The sexes are probably about equally affected, although on adding up various statistics covering 893 cases we find that 530 were in men and 363 in women, but the statistics of individual observers vary greatly, chiefly in proportion to the relative accommodation for the sexes at the institutions at which the cases were observed. Thus Charcot naturally saw more cases in women, as his work



Fig. 4.—Case 1. Bulb. (From Weigert-Pal specimen.)

was largely done at the Salpêtrière, an infirmary for women. Little is known of the causes of the disease except in a negative way. The factors which may be called the "big three" in the causation of nervous diseases, namely, heredity, syphilis and alcoholism, are of no importance. Some authorities, chiefly Marie, believe that the disease is often due to preceding infectious diseases, such as typhoid fever and smallpox, but no satisfactory proof has been offered. In the seventy-five cases on which Eduard Müller's monograph is based, an infectious disease within a few

months of the onset has been present in only four. Oppenheim, with material chiefly from a large city, lays stress on metallic intoxications, and others have mentioned trauma and exposure to cold and wet. Strümpell and his pupil, Eduard Müller, deny the existence of external causes and claim that the disease is analogous to Friedreich's ataxia and syringomyelia in being due to developmental causes. The rarity of two or more cases in one family and the rarity of demonstrable congenital anomalies are unfavorable to this so-called endogenous theory. In short, we know nothing of the actual causes of the disease.



Fig. 5.—Case 1. Third cervical segment of cord. (From Weigert-Pal specimen.)

MORBID ANATOMY.

The morbid anatomy, on the other hand, is well worked out and presents sufficient features so strikingly characteristic of the disease as to secure its place as a morbid entity in spite of its unknown etiology and

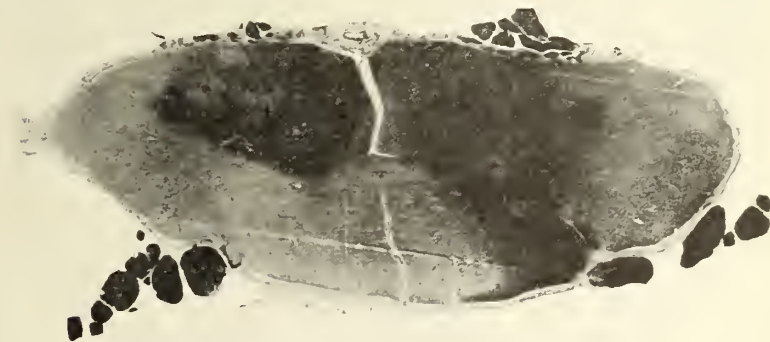


Fig. 6.—Case 1. Sixth cervical segment of cord. (From Weigert-Pal specimen.)

variable clinical features. There is extensive dissemination of sclerotic patches varying from microscopic size to one sufficient to include the whole width of the bulb or cord, in the cord and brain, often also in the optic nerves, which really are projections of the brain and unlike the other peripheral nerves in their structure, and sometimes in the spinal roots, but never in the true peripheral nerves in which there is no neu-

roglia and where the fibers have a neurilemma outside their myelin sheaths. The nodules are grayish and firmer than the surrounding tissue. They may occur anywhere in the central nervous system, but are found most frequently in the white matter of the cord, in the pyramids

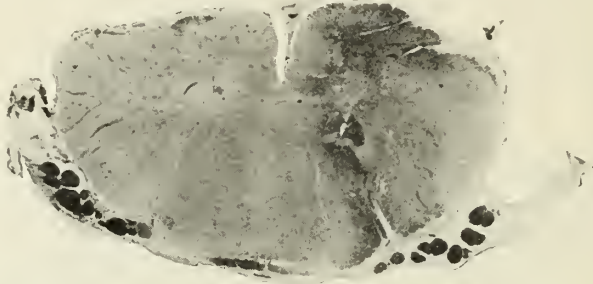


Fig. 7.—Case 1. Thoracic region of cord. (From Weigert-Pal specimen.)

and olives of the bulb, in the anterior part of the pons, in the centrum ovale, in the walls of the lateral ventricles, in the corpus callosum and in the optic chiasm. Although entire tracts may be interrupted by a



Fig. 8.—Case 2. Bulb. (From Weigert-Pal specimen.)

lesion, little or no secondary degeneration takes place, a unique feature peculiar to this disease. The explanation of this is found on more minute study of the lesions and was first discovered by Charcot. In the lesions

the myelin sheaths are destroyed and the glia is increased, but the true nerve elements, the axones and ganglion cells, largely persist, and thus the passage of impulses through the patches is possible. This feature, which is peculiar to multiple sclerosis, accounts for the absence of ascending and descending degeneration in tracts apparently interrupted by sclerotic patches and also accounts for the frequent disproportion between the extensive organic lesions and the variable and often largely subjective symptoms which frequently lead to a faulty diagnosis of hysteria or other functional disease.

PATHOGENESIS.

The pathogenesis, like the etiology, is poorly understood and there are many conflicting views. All agree that in the patches the myelin

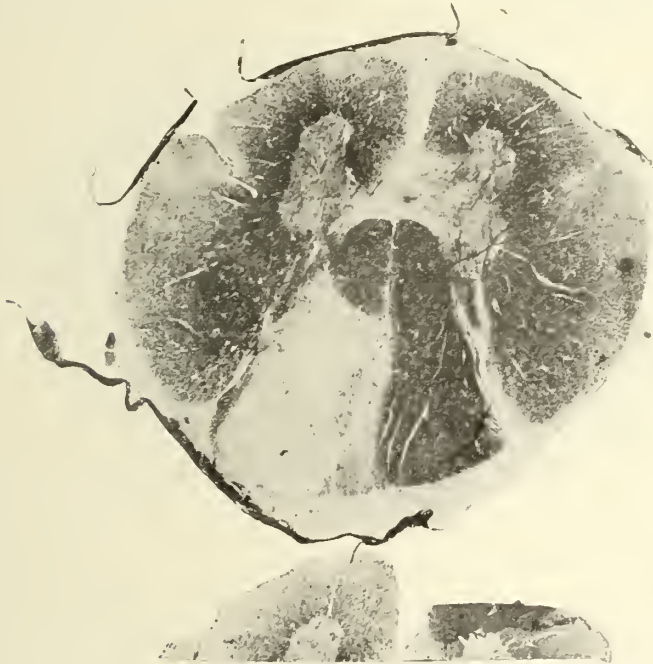


Fig. 9.—Case 2. Third cervical segment. (From Weigert-Pal specimen.)

sheaths degenerate and the glia is increased, but opinions differ as to which change is primary. In addition to the theory of primary myelin sheath destruction and that of primary glia increase, a vascular theory has been advanced, as in some cases changes in the blood-vessel walls and dilatation of lymph channels have been observed. It is rare to find signs of inflammation, such as round-cell accumulations about the vessels and changes in the meninges, and it is very rare to find any changes on cytological examination of the cerebrospinal fluid.

CASE 1.—The brain and cord of this case were sent to the Pathological Laboratory of Rush Medical College by Dr. J. D. Madison of Milwaukee. I am also indebted to Dr. Madison for the following clinical notes. The patient was a white, married woman, twenty-four years old. She had one child at twenty-one.

Her mother and a sister died of tuberculosis. At the age of four years she fell and injured the head in the occipital region. She had been cross and irritable since childhood and had been subject to violent fits of anger. The last illness began about four years before death with unsteadiness and staggering, which persisted. In the beginning of the illness there was temporary paresis of the right leg. About half a year later, in the beginning of her pregnancy, the right leg again became weak and some months later the left leg also became involved and both legs remained greatly disabled. There was little headache but dizziness was a prominent symptom from the onset. Nystagmus was present during the last three years before death. She also complained of occasional nausea and numbness and formication in the right leg. There was also considerable dull, aching pain, chiefly in the right leg. There was difficulty in swallowing during the last six months.

Examination: Very irritable and emotional but intellect intact. Distinct nystagmus. Some irregularity of the pupils which react to light and in accommodation. No paralysis of the external ocular muscles. Vision much impaired.



Fig. 10.—Case 2, Fifth cervical segment. (From Weigert-Pal specimen.)

Distinct optic atrophy. Scanning speech and marked intention tremor in both arms. Patellar reflexes exaggerated. The lower extremities are very weak and rigid. No muscular atrophy. Touch and pain sensation impaired below the right knee. The patient died of pneumonia and the autopsy was held twenty-four hours after death. Only the brain and cord were received for examination. The distribution of the lesions is seen in the illustrations, all of which are reproductions of Weigert-Pal specimens. The great extent of degeneration in the optic chiasm and optic nerve is particularly noteworthy. In the pons, bulb and cord the usual irregular distribution prevails. The roots are nowhere involved. A few macroscopic foci also exist in the brain. Microscopic examination of one of these located beneath the floor of the descending horn of the lateral ventricle shows it to be of this nature.

CASE 2.—The patient was a single woman, 22 years old, and was admitted to the service of Dr. Billings in the Presbyterian Hospital on March 8, 1903. The hospital record is as follows: Family history negative. Previous diseases: She has had the usual diseases of childhood and what was termed 'walking typhoid' immediately before the onset of the present illness. She has generally been strong and healthy. She finished high school in June, 1899, having attended school continuously, with the exception of summer vacations, for eleven years.

The work of the last two years was particularly hard and she had to study until midnight at least five days a week. She thought only of school and took little exercise and toward the close of her work felt very tired and worried. Her habits have always been regular and no history of venereal infection is obtainable. The menstruation began at fourteen years of age and has always been very irregular, two or three months frequently elapsing between periods. The menstruation has always been free from pain and constitutional disturbance, has not lasted over four days and the quantity has usually been scanty. The last menstrual period was in July, 1902.

The present illness began in October, 1899, with a sudden, complete left-sided facial paralysis. She awoke one morning and was unable to raise the upper lid or wrinkle the forehead on that side. The face felt cramped, stiff and numb on the left side. The paralysis lasted three weeks and disappeared gradually without treatment. In January, 1900, there was a similar attack of left-sided facial paralysis lasting six weeks. Immediately following this she noticed dimness of vision with staggering from side to side in walking, due, she says, to weakness

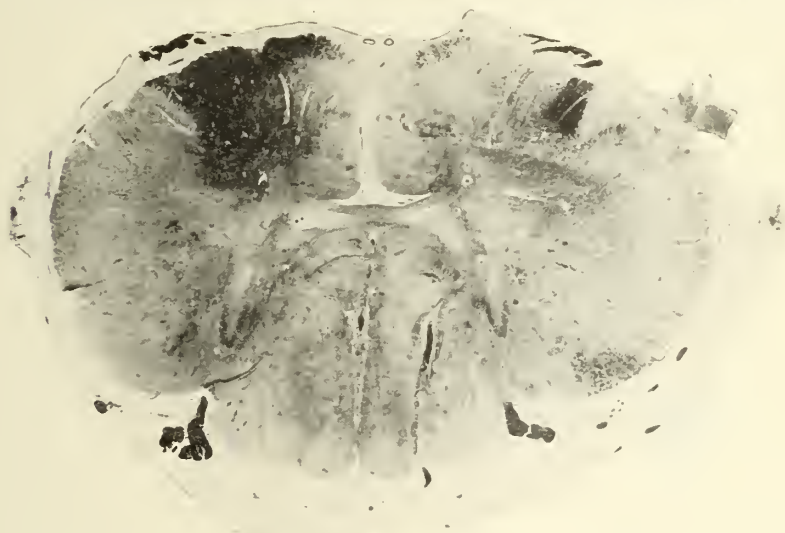


Fig. 11.—Case 2. Seventh cervical segment. (From Weigert-Pal specimen.)

of the limbs and a constant sense of falling forward. The lower extremities soon began to feel numb, heavy and stiff and later similar sensations appeared in the arms. They gradually grew worse but varied in intensity from time to time. She has not walked since June, 1902, and says her condition is worse at present than ever before. Within the past three weeks vision has failed greatly so reading now is impossible. She says that formerly while reading sometimes simple words would convey no meaning to her. She has never had difficulty in expressing her thoughts, but thinks her memory has failed greatly. She does not complain of any disturbance of the special senses other than vision. Occasionally severe frontal headache is present. The chief complaints are as follows: Weakness and numbness of upper and lower extremities; constant flexion of the knees with inability to extend the legs, and involuntary spasmodic contraction of the flexor muscles of the legs; occasional cramp-like pain in the calves of the legs and tingling in the soles of the feet. Complete loss of control of both bladder and rectum; impaired vision; sense of constriction about the lower portion of the chest; amenorrhœa.

Physical examination: The patient is a well-developed, fairly well nourished young woman who is unable to sit up in bed without assistance. The muscles

are flabby but there is no localized atrophy. The skin is warm and moist and of slightly anemic appearance. The pupils react normally and are slightly unequal, the left being wider. There is slight weakness of the left internal rectus, the conjunctivæ are anesthetic, and there is slight nystagmus when the eyes are turned sharply to the left or upward. Ophthalmoscopic examination by Dr. Hotz revealed marked optic atrophy, most advanced in the right eye. The tongue is of normal appearance, is protruded in the median line and free from tremor. The pharyngeal reflex is absent. Examination of the ears is negative. There is slight scoliosis in the lower thoracic and lumbar region with convexity to the right. Examination of lungs and heart is negative, except for slight accentuation of the aortic second sound. Abdominal and pelvic examination negative. Marked intention tremors in both arms, greater on the right side. Muscular, touch, pain and temperature senses are apparently retarded in the upper extremities and the stereognostic sense is disturbed, as she is unable to distinguish differences in the size of coins, etc. The elbow and wrist jerks are not obtainable. The lower extremities are very spastic and there is constant slight flexion at the knee and hip which is greater on the right side. The limbs can be fully flexed but only slowly and incompletely extended. Patellar reflexes are greatly exaggerated, ankle-

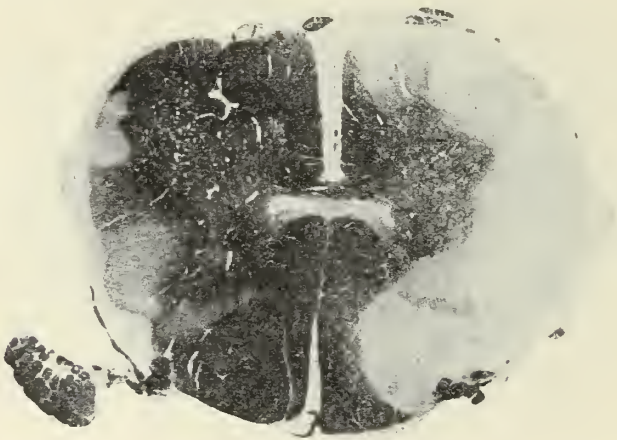


Fig. 12.—Case 2. Lumbar cord. (From Weigert-Pal specimen.)

clonus and Babinski reflex are present on both sides. Sensation, particularly for heat and cold, is retarded, especially in the left leg. Sensation on the trunk is normal, with the exception that about the lower portion of the chest corresponding to the location of the sense of constriction complained of there is an ill-defined band in which the temperature sense is disturbed. Hearing, smell and taste are normal.

The spasticity in the lower extremities increased during her stay in the hospital, the flexor contracture became more marked, and the band of constriction about the chest slowly moved upward to the level of the junction of the third rib with the sternum. Urinalysis negative, except for the presence of numerous leucocytes. Blood examination on March 11, 1903, showed hemoglobin 90 per cent., red corpuscles 4,680,000, white corpuscles 8,200. The patient was discharged April 12, 1903, and a couple of weeks later was taken to another hospital, where on April 28, the uterus was curetted and the legs were straightened and put in casts. She developed a septic fever and was delirious for a month before death, which occurred on July 29, 1903. The autopsy was held on the day after death by Dr. H. Gideon Wells, who made the following anatomical diagnosis: Bilateral fibrous pleuritis; sloughing bed sores over sacrum and buttocks; edema of the lungs; bronchial atelectasis; parenchymatous degeneration of the kidneys; fatty changes in the liver, kidneys and myocardium; endometritis; follicular enteritis;

bilateral fibrous perioophoritis; contractures of the lower extremities. The brain and cord were removed and placed in 10 per cent. formalin for future sectioning. Bacteriological examination: Cultures from the heart's blood, spleen and lung were sterile. From the liver the bacillus coli communis was obtained. The brain and cord were given to Dr. T. Rothstein of the University of Chicago for examination and he kindly gave me pieces of the bulb and cord from which my specimens were taken. The distribution of the lesions as seen from the accompanying illustrations is as irregular as in Case I. Doctor Rothstein informs me that there are no visible lesions in the brain and that the optic nerves are normal on histological examination. The chiasm and tracts have not yet been examined.

SIGNS AND SYMPTOMS OF MULTIPLE SCLEROSIS.*

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CHICAGO.

In the last few years the personal and impressionistic method of studying the exceedingly rich symptomatology of multiple sclerosis has given way to exact research on large numbers of cases. As a consequence it seems that most of our text-books will have to submit the sections dealing with this subject to some measure of revision. The work has been almost all done in Europe, because of the considerably greater frequency there of this disease. How much more often multiple sclerosis occurs in Europe than in America has been a subject of contention—even some of our own compatriots accusing us of not knowing the symptomatology sufficiently well to make a diagnosis in the cases that do not present the classical symptoms described by Charcot. But it is certain that men in America of even the largest experience have seen but comparatively few cases and regard it as a very rare disease. Starr, Jelliffe and Collins, for instance, give figures indicating the frequency of multiple sclerosis in this country as one-quarter to one-half of 1 per cent. of all cases of nervous disease. Starr found only twenty-seven cases among 10,000 patients coming to the clinic for nervous troubles. My own figures agree substantially with this. Among the last 1,500 cases of nervous disease which have been studied at the Chicago Polyclinic, all during a period subsequent to active discussion of the symptomatology of multiple sclerosis and when consequently we have been particularly alive to its possible presence, there have been only 7 cases, or 0.5 per cent. On the other hand, Bramwell, who has studied this matter carefully for Great Britain, says that there 1.7 per cent. of the cases of nervous disease are multiple sclerosis, while Redlich of Vienna says that it is one of the most common affections of the nervous system in Austria, and Müller, Morawitz and others unite in stating that in the rural districts of Germany it is by considerable the most common organic nervous disease to be met with.

The symptoms of multiple sclerosis are so numerous and their incidence and progress so various that for systematically studying them to

* Read at joint meeting of the Chicago Medical and Chicago Neurological Societies, April 1, 1908.

any practical end a particular point of view must be adopted. I conceive the comparative frequency-values of symptoms based, first, upon early appearance and, second, upon relative frequency at any stage, to be the best way of looking at this subject. The justification of this, as well as of the worth of the newer statistics, appears at once when we realize that the classical triad of Charcot upon which we have so long relied—viz., nystagmus, scanning speech and intention tremor—probably does not appear complete in even a majority of the cases as seen at any stage (Müller found it complete in only 15 per cent. of diagnosable cases in Strümpell's clinic) and that, as a rule, none of these three signs is apparent at the early period at which, naturally, we desire to make a diagnosis.

First, as to the initial complaint of the patient; why is the doctor originally consulted? Mackintosh and Curschmann have endeavored statistically to clear up this point. Most commonly, it seems, some motor disturbance is complained of, either gradually or, more rarely, suddenly coming on. It is uncommon to have any real paralysis, but the trouble is rather in the nature of slowness, weakness, clumsiness or stiffness of movement, affecting particularly the legs and less often the arms. All movements are possible, but they are limited in energy and endurance. According to von Leyden and Witlich, if you test such a person you find that he can not repeat his movements as quickly as he normally should, while difficult movements, such as abduction and adduction of a single finger, are hardly possible. The unskillfulness of movement is further added to by the abnormal occurrence of associated movements, e. g., if one finger moves, the others do also. Rodhe and Müller have drawn attention to this early weakness expressed as a very localized feeling of tiredness. All these motor symptoms may remain stationary, may gradually increase or may be fleeting in character.

Perhaps the next most frequent early complaint is in connection with the eye and consists usually in disturbances of vision with often some abnormality of the optic disc. These troubles may precede by years the development of such other symptoms as are noticed by the patient. Abnormal action of the eyelid and of the external musculature of the eye may also occur, giving an ephemeral ptosis or diplopia. Most often a fleeting abducens paralysis is seen, sometimes combined with a similar facial nerve affection. Practically the only early pupillary sign is a difference of size in the two eyes. But I shall not dwell on these points, because this subject is to be dealt with this evening from the ophthalmological standpoint, and, indeed, these patients frequently consult their oculist first.

Subjective disturbance of sensation is about on a par with the eye troubles as an early symptom. The commonest complaint by far is of feelings of numbness or of tingling in the ends of the extremities or, rarer, in other places. Pain is less often complained of, but occurs particularly in the legs; it may, however, also appear in the arms, in the joints, or as intercostal or trifacial neuralgia. The latter was seen in a case with an area of sclerosis at the point of exit of the fifth cranial

nerve. Pain, however, is very rarely a prominent symptom at any stage, because of its lack of severity and continuity. A few cases have complained early of a sensation as if a girdle or cord was constricting the trunk, similar to the spinal root symptom in tabes. Attacks of unsteadiness of gait or of shaking in the arms is the initial symptom next in order of frequency. The hands are affected in that the formerly well-coordinated movements are not now performed safely. The trouble is, for the most part, of the nature of ataxia. Only extremely rarely is there anything approaching tremor at this stage.

Abnormal action of the sphincters is by no means an uncommon early symptom. The difficulty is usually with the bladder and may take the form of retention, of precipitate micturition or of slight incontinence, and these disturbances may be evanescent or may change one into another. Much more unusual is rectal incontinence and yet, as in one of my own cases, periodical appearances of this disorder may precede the development of other symptoms by several years.

Well-defined vertiginous attacks appear very early in a small number of cases, but in the first stage this symptom shows nothing like the frequency it later assumes. Apoplectiform or epileptiform attacks are made much of in the text-books, but Mackintosh found such attacks to be the initial symptom in only 4 out of 110 cases. Sudden unconsciousness is followed by hemiplegia or hemiparesis from which there is generally recovery in a few hours or days. The attack is said to be accompanied by fever. There also may be seizures simulating minor epilepsy. A temporary speech defect is occasionally noticed first. This is not scanning speech. Curschmann says the disturbance amounts to a subjective feeling of hesitation in pronouncing certain consonants, or else a well-marked monotone is assumed with imperfect use of the singing voice.

An initial facial paralysis coming and going in attacks has been reported in two cases by Berger, and Dr. Bassoe has just told you of another. Headache is seldom reported early. Compulsive laughter, a peculiar phenomenon, the nature of which we shall go into later, on account of its very occasional early appearance, is to be reckoned as one of the symptoms belonging to the first stage.

In search for first signs of multiple sclerosis, much has lately been made of the early loss of the abdominal reflex. Oppenheim, in the last edition of his text-book, seems inclined to discount its value because of the alleged occasional absence of this reflex in healthy people. His remarks stimulated Müller and Seidelmann to further extensive research, and they have established the fact that this reflex in adults under 50 is practically always obtainable unless there is abdominal or nervous disease present. Of course, the correct technic must be employed. On the other hand, Müller contends and several other authors agree that in the initial stadium of multiple sclerosis the great majority of cases show abnormality of this reflex. The bilateral failure is, of course, most valuable, but mere diminution or the unilateral absence of the reflex is of some import. The cremasteric reflex also, as we might by analogy

expect, has the same strong tendency to early disappearance in multiple sclerosis. The knee jerk and Achilles jerk are both usually early exaggerated, and sometimes the Babinski phenomenon may be obtained before any discoverable spasticity or paresis has set in.

The course of the evolution of the symptoms of multiple sclerosis is in its uncertainty quite characteristic. They may arise gradually and develop to a certain extent and then get gradually better. Or they may come on suddenly, last for an indefinite time and disappear as suddenly, only to return again. Remissions are more or less characteristic of the disease at any period, but they take place with the greatest frequency in the earliest stage, while all through the disease the symptoms which appear the earliest have the greatest tendency to temporary spontaneous betterment. This is true whether we consider motor, sensory or visual symptoms.

Coming now to such symptoms as are seen in any stage of the disease and studying them with regard to their relative frequency value, we find sets of fairly consistent figures contributed by several authors and totaling a large number of cases. The most frequent single symptom of multiple sclerosis probably is tremor. It occurs, a comparatively late symptom, in about 70 per cent. of the cases. The tremor may begin as such in one extremity, especially in one arm, or it may have been preceded by the slow and clumsy movements we have already described. The character of the tremor is almost pathognomonic. Practically always it is absent in rest and always appears with voluntary motion and sometimes with reflex, automatic and associated movements. It is on this latter account that Oppenheim suggests calling it "motion tremor," instead of intention tremor. The phenomenon is especially well seen in the large muscles of the extremities and trunk. The entire involved part shakes with excursions of considerable amplitude some four to six times a second. The tremor is observed best in the arms, but is also seen well in the head—the supporting neck muscles inducing sidewise or nodding movements. The head supported in bed shows no tremor. Occasionally the face and jaw muscles show the tremor. Boucharde has found examples of the tremor appearing at rest, as in Parkinson's disease.

Almost as frequent as tremor are subjective sensory disturbances. These remain over from the early stage, and their character as feelings of numbness and tingling and constriction sensations about the trunk does not change much, while the areas involved frequently change, except as regards the ends of the extremities, and often grow in extent.

Motor disturbance in the limbs varying all the way from slight spastic weakness to paralysis with fixed contractures is a very important symptom. The stiffness in its beginning may be observed to increase with repetition of motion, e. g., if passive movements of incomplete excursion are rapidly and repeatedly executed the resistance will gradually be more and more noticeable. Another evidence of this light grade of spasticity will be found in the resistance to sudden passive movements of the joints. Higher grades of spasticity are, of course, harder to overcome and may finally lead in multiple sclerosis to permanent contrac-

tures which are apt to begin with attacks of localized spasms, principally as extension cramps of the legs. The contracture at first is mostly of the extensors, but later the flexors overcome so that, in cases where there is a large area of sclerosis in the dorsal cord, the heels may touch the buttocks. The arms suffer less. The gait is, of course, soon affected. Early the patient may show the phenomenon of increasing stiffness with repeated movement in his motor apparatus, so that a walk set out upon becomes very difficult or has to be abandoned on account of the terrific stiffness which did not exist a few minutes before. In general the type of the gait is spastic paretic—feet drawn along the floor, overlapping, legs adducted—but the picture may be modified by existing disturbances of equilibrium, by tremor and weakness. Any cerebellar ataxic feature of the gait, if present, may be brought out by ordering the patient to quickly stop or turn. The entire body may sway (Oppenheim's *vascillation*) in walking as the result of irregular contractions of the trunk muscles. The paralytic process affects oftenest both legs, less frequently both arms.

In contrast to the above, it must be asserted that in rare cases, as I have seen, even where severe tremor exists, the muscular strength may be excellent and the patient be capable of doing heavy work. Another contrast to the usual type of spastic paralysis is found in the exceedingly rarely observed temporary flaccid paralysis.

Dizziness sooner or later supervenes as a feature of a goodly majority of the cases. It usually asserts itself in attacks which sometimes may be so severe that the patient falls to the ground. Locomotion and sudden movements of the eyes are inducing causes for seizures of vertigo. Nystagmus is variously estimated as appearing in 45 to 75 per cent. of the cases; optic atrophy almost unanimously as occurring in 50 per cent. Optic neuritis has been observed. Scotoma, usually of the central type, is not infrequent. Speech difficulties ultimately appear in about half the cases, but true scanning speech is not nearly so frequent as is generally supposed. One writer places its total incidence at 12 per cent. In the classic cases of Charcot the speech is slow and the words are split up, the syllables are separated by pauses. But before this the speech of a spelling child may be simulated. Other patients simply show monotony of tone or stumbling over syllables. Hoarseness may be present.

The bladder functions are very frequently disturbed, but only rarely permanently. Difficulty in emptying the bladder, retention or incontinence may appear and remain for days or weeks and then disappear to return again after a time. Rectal incontinence is a rare phenomenon at any stage of the disease.

Mental conditions in this disease, which is as prone to attack the brain as the spinal cord, form an interesting chapter. It is decidedly rare for patients with multiple sclerosis to come to their end without showing psychic abnormalities. The typical psychosis is mild dementia with euphoria; patients lack appreciation of their condition, they have the unwarranted optimism of general paralytics. The intelligence is lessened and the memory is poor. A young woman, for instance, will

appear very silly, giggling in the ward, not caring to tell her health history or to discuss her case. She will whisper almost meaningless phrases to the doctor and will gently slap his arm. The usual run of cases show only the slighter changes, but in others attention, memory and normal association of ideas slowly fade away and, as Charcot insisted, in rare instances the end picture may closely resemble general paralysis. Marked dementia, hallucinations and delirium, however, are unusual. Other patients show early ill humor, developing, perhaps, into melancholia, and later paranoid states may supervene.

The exaggerated emotivity which exists in some patients—demonstrated by the tendency to laugh and cry easily—shades over into attacks in which the victim is compelled to laugh or cry, sometimes with spasmodic explosive sounds as if choking. These latter occur quite independent of any corresponding mental attitude, indeed the attack is developed quite against the patient's will—laughter is without merriment and weeping without sorrow. The attack is a motor spasm probably conditioned by a lesion in one of the higher coordinative centers, perhaps in or about the optic thalamus; a neurologic, not a psychic, phenomenon.

Defect of sensation is to be found by objective examination in perhaps about a third of the cases. Some authors think that it is rarely intact during the entire course of the disease, but it is certainly the exception to have severe lasting disturbances. The examiner may miss the abnormality at any given examination because of its light and fleeting character. The senses of touch, pain and temperature are apt to be all relatively diminished in degree and there may be some disturbance in the sense of position. Or, again, lowered temperature sense may exist alone. The localization of the sensory disturbance is, for the most part, at the ends of the extremities—where most of the paresthesias occur—but may exist in a cerebral type as a hemihypesthesia. Curschmann says that occasionally there is a glove or sleeve distribution of anesthesia which is not influenced by suggestive treatment, and hence is not of a hysterical nature. In very rare cases there may be a complete hemianesthesia and in still more uncommon ones the picture of a Brown-Séguard sensory defect may obtain.

Headache seems to be a point upon which there is less agreement. Some think it is a very common complaint in multiple sclerosis and others state that it seldom occurs. Perhaps the ascribing of such a common trouble to the organic disease is not often done by the physician, and perhaps sometimes the patient thinks it is not worth reporting.

A possible example of what may be discovered in the way of symptoms by looking for them is found in Berger's statistics where he maintains that 20 per cent. of over 200 cases had at some time some disturbance of the facial nerve. We have already spoken of this under the head of an initial symptom. The trouble tends to recur. In some reported cases an isolated facial paralysis has been found to be due to a sclerotic patch affecting the facial nerve in its intrapontine path.

Severe apoplectiform attacks are by most recent authors accounted to be decidedly rare. Frankl-Hochwart says about 1 per cent. experience such seizures, Berger found that 17 of his 206 cases had had hemiplegic symptoms, while Müller found no instance among his 80 cases. All sorts of variations may occur according to the laws of localization—aphasia may accompany the hemiplegic paralysis, or the nuclei of the pons may be involved. Sometimes hemiplegia alternans has been observed. Also sudden unconsciousness followed by paraplegia or even by quadriplegia has been recorded. In any given patient such attacks, although severe, may be entirely recovered from and repeated a number of times.

In contrast to the above, light apoplectiform attacks are, however, experienced by about a quarter of the patients. In such cases there may be a fleeting cloudiness of consciousness or attack of fainting or dizziness accompanied by suddenly appearing weakness upon one side or in one extremity or by a light disturbance of sensation. Much rarer are the so-called epileptiform attacks. These may possibly be of the Jacksonian type of seizure or partake of the nature of either major or minor epilepsy.

Ataxia exists in a few cases without motor weakness. During walking the toes are slipped forward with evident difficulty of coordination and the foot is raised too high and the heels stamped down. The ataxia of the legs may be demonstrated also in the prone position, but in many cases there may be difficulty in differentiating it from an existing tremor. Where the disturbance of motion is greater when the eyes are closed, then ataxia is certainly present. In the rarest instances ataxia of almost a tabetic type may be found with hypotonia of the musculature and even with absent knee-jerk.

It is not extremely rare in multiple sclerosis to see atrophic conditions in a group of muscles, e. g., the interossei, or in a whole extremity. But it is exceedingly unusual to find such an atrophy accompanied by reaction of degeneration. The atrophy is the result of the sclerotic process extending to the anterior horn of the spinal cord, but, according to Le-Jonne, the motor cells are attacked in such a way that the atrophy proceeds fiber by fiber, and the function is preserved to the electric current because until the end there are some good fibers left. As a matter of fact, however, after the process has gone on for some time, the electric irritability is quantitatively diminished.

Of course, in a disease with such widely distributed lesions throughout the central nervous system there must be a number of other isolated symptoms which may rarely occur. Deafness, for instance, may proceed from a plaque of sclerosis in the medulla, a lesion which may also account for the occasional appearance of subjective noises or for hyperesthesia acusticæ. Oppenheim has seen an analogous result in a nerve of general sensation—a persistent trigeminal neuralgia—from an island of sclerosis at the point of exit of the fifth nerve in the pons. Disturbances of the sense of smell on one or both sides and of taste have been reported. More important is interference with the function of the intrinsic laryn-

geal muscles. Leube, Lori and a number of others have reported cases. The usual phenomenon is paresis of the adductors, rarely developing into a definite posticus paralysis. The effect upon the voice is to render it hoarse or monotonous. In phonation a tremor of the vocal cords is occasionally seen. This tremor may extend to the respiratory muscles and give a kind of tremulous breathing. Limited mobility of the tongue, with fibrillary tremor of the same or even with hemiatrophy, may be the result of interference with the hypoglossal nerve, or its nucleus.

The condition of the reflexes is of the greatest import because of the frequency of abnormalities. Morawitz says the abdominal reflexes are quite absent in more than one-half of the cases and that in fully 75 per cent. they are not normal—that is to say, they are either bilaterally absent, are pathologically weak, or are not to be found on one side only. Müller states that a complete and permanent absence of the abdominal reflexes existed in 62 per cent. of his cases, and that they were more or less abnormal in a total of 80 per cent. At least half a dozen other investigators have corroborated these statistics. Thus it seems that this sign is perhaps the most valuable single finding to be met with in multiple sclerosis.

The cremasteric reflex is also by Müller and others found to be a sign of worth. In only the minority of the male patients is it found normal—and the abnormality varies all the way from bilateral absence to mere weakness on one side.

The Babinski phenomena—the extension of the great toe when the sole of the foot is stroked—is another most valuable sign. Looked for at a fairly advanced stage of the disease it is very seldom found absent. This sign especially partakes of the changing character of the symptomatology of multiple sclerosis and consequently may be found at one time and not at later examinations. The same may be said of Oppenheim's reflex, which follows its usual rule of being present sometimes with the Babinski phenomenon and very occasionally without it. Gordon's paradoxical reflex may also rarely be discovered. Remak has described cases in which on account of the excessive reflex irritability dorsal flexion of the toe or foot can be induced by pinching a fold of skin on the anterior surface of the thigh.

Of the tendon jerks there is not much of value to be said because they are not particularly characteristic of multiple sclerosis and merely follow the usual rule in spastic parietic conditions. The knee-jerks and Achilles jerks are, of course, exaggerated unless there is some complicating condition, and the increase in myotatic irritability may lead to ankle clonus and less frequently to patellar clonus. Sometimes, indeed, percussion of the patellar tendon will induce a momentary trembling of the whole extremity—the "spinal epilepsy" of older writers. The arm jerks are not as frequently exaggerated as the leg jerks because of the greater immunity of the upper extremities from the motor involvement. The recently described carpo-metacarpal reflex (tapping of the wrist just below the styloid process of the ulna causing a sharp flexor contraction

of the fingers if they are already slightly flexed) is of some value in verifying suspected motor interference.

The general condition of patients with multiple sclerosis is usually good. The commonest victims are young, otherwise healthy, well built and strong. In the earlier stages no unusual proportion of internal disease attacks them. The state of nourishment is apt to be for the most part good up to the time when the patient has to take to bed, that is, unless bulbar symptoms have interfered with alimentation. Only in the very latest stages do patients suffer from severe complications of their organic disease; cystitis, pyelonephritis, bed sores and aspiration pneumonia are the usual causes of death.

No account of the symptomatology of multiple sclerosis is complete without great emphasis being placed on the irregular evolution and the frequent remissions of the symptoms—a point which we have already several times mentioned. Most writers subscribe to the old dictum of Charcot, that it usually takes six to ten years for the full development of symptoms. During the period of incomplete development there are frequent remissions, complete or incomplete, of both symptoms and signs. A number of cases have now been reported which ran their full course in from one to two years, but usually the remissions or the slow development of symptoms give a total life period of at least ten years. The periods of quiescence or betterment may last for months or years, a quite stationary condition having been observed in Strümpell's clinic for over seven years. Another point: even though well along in the disease, the symptoms may not be of a disabling nature and the person may even be at heavy work unaware of his condition.

The multiplicity of symptoms in multiple sclerosis has given rise to a natural desire on the part of authors to classify them in forms and types and pictures. There has been much talk of classical and of atypical forms. The possibility of innumerable combinations in this disease, which is so unsystematic and unpreferential in its distribution throughout the central nervous system, has foiled any attempt to satisfactorily schematize the symptoms. Some authors, indeed—such as Buzzard and Redlich—specifically warn against naming types. The so-called classic form with Charcot's triad of symptoms is classical only in a historical sense. As I have said, Müller found only 15 per cent. of his patients presenting the triad at the time of diagnosis. The idea of Charcot, then, that all other cases are "formes frustes" will hardly hold good. Müller pleads for simply dividing the cases into those with usual combinations of symptoms and those presenting unusual pictures. The most common group, he maintains, are those beginning with (a) isolated or predominant spinal symptoms; next those beginning with (b) isolated or predominant cerebral symptoms; and more rarely those beginning with (c) isolated or predominant bulbar symptoms. Other writers, e. g., von Leyden and Goldscheider, believe that the most common type shows cerebral and spinal symptoms developing concurrently. If the future classification of this difficult matter is to be according to topographical location of the lesion, then I think we are ready for the introduction of

a saeral type; first named, but probably not first observed, by Oppenheim. This author describes a case with beginning weakness of the legs and retention of the urine, then betterment. Later there was urinary incontinence, pains in the legs, incontinence of feces, and sexual impotence. Other and more usual symptoms developed still later. Just such a case as this I saw myself in 1906—a man engaged in active farming who came down from Wisconsin for examination. He was a strong and healthy looking man of 40, who at the examination showed unmistakable evidences of multiple sclerosis, but whose only complaint until recently was apparently causeless attacks of incontinence of the bowels, which at varying intervals had troubled him sorely for eleven years. He had experienced unusual feelings of weakness for the last three years.

There is one classification of the symptomatology, viz.: into acute and chronic types, which will have to be finally decided on by pathologists. A number of competent observers have reported cases which quickly developed all the most frequent symptoms of multiple sclerosis and ran their course in from six weeks to six months. Marburg has lately contributed most fully to this subject. He says that usually an abnormal feeling of tiredness is followed by paralysis of either cerebral or spinal type and then many other symptoms common to the disease develop in the usual evanescent manner. As in the chronic form, so here the Charcot triad is generally not present. Marburg apparently believes the disease process to be practically the same in both chronic and acute forms.

A little more generalization of the symptomatology can be accomplished by stating some of the symptom pictures which may be present. The most common of these is simple spastic spinal paralysis—a picture which may be portrayed early and maintained throughout the course of the disease, especially if we allow for the detail of optic atrophy. Then, too, the symptoms of transverse myelitis may be closely simulated; Flatau, Siemerling and Nonne record such cases. Paresthesias, pain in the legs, disturbance of the bladder, bed sores and lost knee-jerks dominate such a picture. LeJonne believes that at times the well-known syndrome of amyotrophic lateral sclerosis is imitated so well as to form a special type of multiple sclerosis. The symptomatology of Brown-Séquard paralysis had also been observed. In a few cases the bulbar symptoms come to the foreground to such an extent that the regular type of bulbar palsy may be under consideration. In one case of this type glycosuria obtained. Some instances of simulation of apparently acute inflammation of the upper cord, medulla and pons—giving acute ataxia of upper extremities with bulbar symptoms, hemiparesis alternans and alternating disturbance of sensation—have been recorded, all of which symptoms quickly disappeared with later development of other signs of multiple sclerosis.

There is no reason why multiple sclerosis should not be found combined with other nervous diseases and thus have its symptomatology interfered with. It is said to be fairly often complicated by hysteria, and Westphal saw a case of combined multiple sclerosis and tabes.

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THE EYE MANIFESTATIONS OF DISSEMINATED
SCLEROSIS.

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In disseminated sclerosis the study of the functions and motility of the eyes is of much diagnostic importance, since eye symptoms occur frequently, early and often in a characteristic manner. Visual disturbances were found by Uthoff in one-half of 100 cases of this disease at the time of the examination. Since the optic lesions, though often an early incident, may occur at any period, the chances of impairment of sight some time during the course of this long-lasting disease are very much greater than 50 per cent.

The involvement of sight is often an early manifestation. It may even precede all other symptoms by many years; hence its great diagnostic significance. It is about as often one-sided as double-sided. When bilateral it is not necessarily alike on both sides. The sight may fail suddenly or very rapidly or in other instances gradually. The disturbance of sight is often transient in duration or at least variable in course, and good recovery or at any rate satisfactory improvement is not uncommon in this disease. But, again, later aggravation or relapses are also met with. Double-sided complete blindness is very rarely observed in insular sclerosis.

On analyzing the patient's failure of sight, various forms of defect are found by measuring the field of vision. Rarely there is dimness, with intact field and no defined scotoma. Often the field is found uniformly restricted, as in any other form of optic atrophy. Irregular constriction is more suggestive of sclerosis, and especially so if combined with a central scotoma. A central scotoma with intact field, fairly common, may resemble the disturbance in retrobulbar neuritis. It is not difficult to distinguish in the case of a central scotoma between the toxic forms of retrobulbar neuritis and insular sclerosis by the history. If

one-sided, the scotoma could, in fact, not be due to toxic influences which act always bilaterally. But it may be difficult to differentiate between the scotoma of sclerosis and that of a non-toxic retrobulbar neuritis which has often no preceding history. In such a case bilaterality would favor the probability of sclerosis as the cause.

The ophthalmoscopic findings are not always proportionate to the degree of sight. Occasionally the disease of the nerve is not visible with the ophthalmoscope, although sight may be poor, while again a very pale and atrophic looking nerve may be found, notwithstanding a very fair degree of sight. The most common lesion is primary atrophy of the optic nerve, which scarcely ever gets to be complete in both eyes. Quite common is incomplete or partial atrophy, involving more of the temporal side of the papilla. A smaller number of atrophies are secondary to a previous neuritis, as suggested by the irregular contour of the nerve head or residues of inflammation in or around the disc. Active optic neuritis is met with in some 5 per cent. of instances. In another 5 per cent. no lesion can be seen with the ophthalmoscope. There is either a retrobulbar neuritis behind the globe not involving the papilla, or there is a patch of sclerosis in the nerve somewhere in its course. It is remarkable that characteristic sclerotic patches may disappear without leading to secondary changes or may persist for a long time without necessarily causing descending atrophy.

The movements of the eyes are disturbed by palsies in at least 20 per cent. of all cases of sclerosis some time during the course of the disease and often as one of the earlier manifestations. Like the visual disturbances, these palsies are apt to be incomplete and not rarely transient, ending in recovery, though the prognosis is always somewhat uncertain. The palsy is more often one-sided than bilateral. The sixth nerve is the one more often involved, causing failure of abduction and homonymous diplopia. About equally common, though less frequent than abducens paresis, are partial or complete involvement of the third nerve or paresis of associated movements like up or down or lateral movements or the power of convergence. Paralysis of associated movements means necessarily the presence of a sclerotic patch in the central nuclei governing the associated movements of the two eyes. These lesions, too, are often transient in duration. Less common is complete temporary or permanent abolition of all movements of either or both eyes.

Insular sclerosis more than any other acquired brain disease may cause nystagmus, oscillations of the two eyes, usually in the horizontal plane (12 per cent. of Uhthoff's observations). Much more common, however, are nystagmoid movements, which are met with in nearly one-half of all sclerotic patients. The eyes are quiet as long as the subject does not turn them to either side (or less commonly up or down) as far as motion is possible. When such an extreme terminal version is attempted, jerking oscillations occur at once and are kept up as long as the effort is maintained. Since nystagmoid movements may occur in some normal subject, also relatively often in various forms of exhaustive diseases and are by no means uncommon in various other nervous affec-

tions, they can not be called diagnostic of sclerosis. But on account of their frequency in this disorder their occurrence is suggestive, especially when associated with some palsy or visual disturbance. Nystagmoid movements may diminish or disappear again. Whether regular nystagmus is ever of transient nature I have not been able to learn.

Pupillary disturbances are less frequent in sclerosis (under 15 per cent.). Absence of reflex contraction upon exposure to light is not often observed, although the Argyll-Robertson type of pupillary rigidity so common in tabes does occur exceptionally, too, in insular sclerosis. More frequent is pupillary sluggishness, especially associated with a narrow pupil, less commonly with an enlarged pupil. Inequality of the two pupils is more often met with, but even more frequent is bilateral narrowness with normal or slightly reduced mobility.

DIAGNOSIS OF INSULAR SCLEROSIS.*

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Published observations of late years almost warrant the statement that in its onset and early stages insular sclerosis may very closely simulate every disease of the nervous system, both functional and organic. However, while much may be said in support of this proposition, I shall at this time only attempt to call attention to some of the diseases relative to which the question of differential diagnosis is most likely to confront the practitioner. Before proceeding further the general statement may be made that insular sclerosis frequently begins much later in life than was formerly supposed. Ormerod has recently reported a case with autopsy beginning acutely in a hitherto healthy woman of 54—that scanning speech, intention tremor and nystagmus are frequently late symptoms and may even never occur in cases that extend over a period of many years, but that, nevertheless, they are highly diagnostic whenever they do make their appearance.

HYSTERIA.

That hysteria may simulate every known disease is a statement pretty generally accepted, though perhaps not strictly true. If, however, it is measureably true, the similar statement made above in reference to insular sclerosis will suggest the propriety of their conjoint consideration in diagnosis. Paresthesia, hyperesthesia and anesthesia, in their mode of onset, degree, distribution and disappearance, may be identical, and the same may be said of the motor disorders, such as the monoplegia, paraplegia and diplopia. No matter how prominently one tries to keep in mind Sir William Gower's famous aphorism, "Symptoms of hysteria painted on an organic background," months and even years sometimes elapse before an organic background can be demonstrated even in the

* Read at joint meeting of the Chicago Medical and Chicago Neurological Societies, April 1, 1908.

development of cases where finally unequivocal symptoms of insular sclerosis make it certain that an organic base existed from the first. Later investigations have tended strongly to render a diagnosis of hysteria far less acceptable than formerly, and in clinical neurology the study of insular sclerosis has contributed mainly to this result, though the influence of brain tumor in the same direction has been considerable. Formerly if a girl previously healthy developed paraplegia with or without paresthesia or anesthesia of the paralyzed parts so that within a few days or hours she could no longer stand or walk, and if after days or months the symptoms rapidly or suddenly disappeared perhaps under the influence of suggestion so that she danced and played tennis as well as ever and so continued for months, a positive diagnosis of hysteria would have been pronounced without hesitation, whereas it is now well known that such a picture is entirely compatible with the existence of insular sclerosis. This is equally true of diplopia and other motor as well as sensory disorders. It is doubtless true in some cases a careful examination would show that the remission was not complete, though so regarded by the patient. However, in a symptom like diplopia where more or less positive tests may be employed, complete disappearance may be demonstrated extending over a period of years in cases where subsequent events render it practically certain that the organic changes of insular sclerosis were the cause. The discovery of organic disease as a basis of symptoms constitutes then the differential diagnostic problem. Actual and persistent sphincter derangement when it appears affords highly conclusive evidence in a hitherto doubtful case, but, though it very commonly develops some time in the course of the disease, it may be delayed for years. The Babinski sign—extension of the toes on stroking the sole—has come to be pretty generally accepted as evidence of organic disease; only too often, however, the stipulated manipulation provokes no kind of a response whatever.

Blanching of the temporal disc, indicating commencing optic atrophy, together with loss of the abdominal reflex, have been ardently exploited by Edwin Mueller of Breslau as the earliest signs of insular sclerosis; indeed, I believe he claims they are present in every case from the first. Extended observation by others do not confirm his dogmatic statement. Likewise his assertion that the abdominal reflex can always be demonstrated in healthy adults has been generally contradicted. I may say my own experience does not permit me to agree with Mueller's sweeping propositions. Nevertheless, I believe loss of the abdominal reflex invariably occurs on the paralyzed side in hemiplegia from organic brain lesion, and optic atrophy first manifested by a change in the temporal disc is frequently met with as a part of insular sclerosis. Therefore, both the condition of the disc and the reflex should be noted as a matter of routine in all neurological examinations, and perhaps it is only fair to admit that the agitation Mueller has stirred up has served a useful purpose. The significance of nystagmus, scanning speech or intention tremor, either alone or variously combined in the course of the usual symptoms of hysteria, is too obvious to require comment, though,

according to my own observation, such a change of articulation as is met with in general paresis is more frequent than scanning. I have also known the voice to become very high pitched, nasal, weak, plaintive and whining quite independent of any corresponding mental state. The fact of finding such evidence of hysteria as loss of the faucial reflex, limitation of the visual fields, etc., while somewhat comforting, do not make it certain in a given case that insular sclerosis is not in progress, for in a predisposed person symptoms of hysteria may accompany, even to the point of predominance, those of any other disease. Attacks of vomiting, inordinate and uncontrollable emotional manifestations and epileptiform seizures are common to both diseases, though the latter may simulate true epilepsy more closely in insular sclerosis than in hysteria, that is to say, there may be sharp clonic spasms, with tongue biting in the former but not in the latter. Though only touching some of the high places, so to speak, of this part of my subject, I shall have accomplished my purpose if I have made it appear that so-called functional symptoms are always worthy of careful and serious consideration.

BRAIN TUMOR.

The origin of the cerebral symptoms in brain tumor and some cases of insular sclerosis is doubtless essentially identical, and in those cases of the latter disease which begin with a sudden or acute onset it may be impossible to make a differential diagnosis till definite involvement of the cord can be demonstrated. Optic neuritis with secondary atrophy, intense headache and vomiting, apoplectiform and epileptiform seizures are common to both and may constitute the sole symptoms in either disease for months. However, delimited manifestations of this sort extending over any considerable period are far more appropriate to brain tumor than to insular sclerosis.

TABES.

Most authorities agree that insular sclerosis is by far the most frequent chronic organic disease of the nervous system in the rural population, as tabes is most frequent among urban residents. Some investigators, indeed, maintain that it is scarcely second to tabes in the latter classes. Their onset and early course frequently present many symptoms in common, and, while examination would frequently, if not usually, reveal signs in tabes highly pathognomonic, even before any symptoms have appeared that might lead the patient to seek medical counsel, there are not a few cases in which the differential problem is presented. Among symptoms common to both diseases may be mentioned optic atrophy, transient diplopia, various paresthesias, including the girdle or constriction sense, as well as anesthesia in different forms, sphincter disturbance, impotence and ataxia.

Insular sclerosis can not be held to have pathognomonic signs in anything like the same degree as tabes. Either the Argyll-Robertson pupil or lightning pains, in conjunction with loss of knee jerk, or the latter alone, with any of the symptoms mentioned above as common to both

diseases, might justify a diagnosis of tabes, but nystagmus, intention tremor, scanning speech and optic atrophy can only be regarded as cardinal symptoms of insular sclerosis when they are variously combined. Any or all of them are frequently wanting in the early years of insular sclerosis or even throughout the entire course, while many other highly diagnostic signs are present, whereas loss of the knee jerks is practically always found in every stage of tabes. In rare cases, however, they may still be demonstrated, though impaired in the early stages. In insular sclerosis, on the other hand, the knee jerks are commonly increased in the early stages, though rarely they may be greatly diminished. I will here present notes of two cases recently seen in hospital practice which illustrate some of the points above referred to.

CASE 1.—A married woman of 25 of dissolute habits, probably infected with syphilis at the age of 13, enjoyed excellent health till four years ago when she began to have pain in the lower right abdominal region and soon after a marked girdle sensation was noted, also there was thickening of the lower right tibia with pain. These conditions have persisted. Three years ago she began to have periods of retention of urine, lasting several days at a time when she had to be catheterized, the odor of the urine being very offensive. For the past year there has been some vertigo and nausea, worse of late and she feels as if she were moving through space, floating upward to the ceiling. August 16 she could not read a letter on account of haziness of vision; got rapidly worse so that by January 8 she could barely distinguish day from night. Two epileptiform attacks occurred four weeks ago with foaming at the mouth and tongue biting. Both pupils are widely dilated and stationary. There is distinct nystagmus in both eyes, the left eye is turned outward and upward and there is considerable drooping of left lid, but all the external ocular muscles act perfectly when tests are made. There is marked atrophy of both optic nerves. The tactile sensation is normal everywhere but reaction to pin pricks is generally reduced excepting that a small patch below left breast is hyperesthetic. The tendon reflexes are all normal except the patellar which can only be demonstrated by reinforcement. There is slight plantar flexion, the abdominal reflex is present and equal on both sides and there is marked ataxia of all four extremities. Here is evidence of a widespread progressive organic disease of the nervous system in which nystagmus reduction of the knee jerks without decrease of the Achilles reflexes incline me to a diagnosis of insular sclerosis rather than tabes or syphilis of the brain and cord.

CASE 2.—An otherwise healthy man of 44 had syphilis fifteen years ago. Five years ago noticed failure of vision in right eye which in the course of a few months advanced to complete blindness, vision in the left eye however remained good. He says there has been some urinary incontinence for the past fifteen years. Two years ago he noticed pains in left hand accompanied by weakness. The pains were not constant but would shoot up the arm; at the same time he had a similar condition in the right leg below the knee chiefly in the foot. For the past year he has noticed distinct wasting of the muscles in these parts. For the past three months he has suffered no pain. There has been no headache or nausea. Examination shows a well developed man but his mentality seems somewhat clouded. The right eye is totally blind. The left eye presents drooping of the upper lid and there is concentric restriction of the visual field, the pupils are small, sluggish to light and react not at all to accommodation. There is distinct nystagmus in both eyes, the left upper lid can be raised fully without extraordinary effort.¹ There is marked atrophy of the muscles of the left forearm and hand, the thumb lies in same plane as fingers. In the right leg the gastrocnemius, solens and peroneus group are much wasted. The tendon reflexes are entirely absent on both sides; there is no plantar response. The abdominal

1. The patient left the hospital unexpectedly before the fundus was examined.

reflex is present on both sides, but less marked on the left. The mental impairment is such as not to admit of a very close estimate of the condition of sensation. It is not anywhere very grossly reduced. There is considerable ataxia in all four extremities. In this case though knee jerks and Achille jerks are absent, the presence of nystagmus and the neat delimitation and distribution of marked muscular atrophy seem to suggest a diagnosis of insular sclerosis rather than tabes, progressive muscular atrophy or cerebrospinal syphilis.

Finally, in support of my contention that the clinical diagnosis of insular sclerosis may involve a careful scrutiny of the whole field of neurology and psychology, I will refer briefly to a case recently reported by Dr. J. A. Ormerod,² of London. A woman of 54 was sitting resting in the afternoon when, without warning, her legs became straight and stiff, with the toes spread out. At the same time she was attacked with violent diarrhea. Both the spasms and the diarrhea subsided in from two to three hours. In the forenoon of each of the three following days she had a similar attack, lasting from three to five hours. After this the legs began gradually to draw up, and this process continued with some variations for about six months, when the right knee was under the left axilla and the left similarly but not quite so severely contracted. Almost from the first there was a tight feeling about the waist, and after four months the abdominal muscles became hard like a board. About five weeks from the onset painful cramps set in, in which the legs went out straight and then drew up again quickly. She was subject to these for several weeks. About six weeks after the onset definite sensory symptoms appeared and at the same time incontinence of urine, which in a few weeks had advanced so far that she was entirely unconscious of the act of micturition. The painful sensation ran from the knees to the toes and seemed to the patient like a wound-up clock running down. It subsided in about three months, and an examination made ten months after the onset revealed no definite anesthesia. The patient died about thirteen months after the commencement of her illness, death having occurred nine days after an operation undertaken for the purpose of straightening the legs, though she was slowly failing prior to that event. Fifteen years before she had had rheumatic fever and scarlet fever at the same time, since which her heart had been weak.

Four years before she had had a stroke affecting the right side of the body and lasting twenty-four hours, possibly a premonitory symptom of the insular sclerosis. The postmortem showed plaques of disseminated sclerosis in the spinal cord, principally in the cervical region, in the pons and medulla, right optic thalamus and right optic tract. Disseminated sclerosis was not suspected during life.

There may be some advantage in dividing the cases according to the mode of onset into groups, for it is at this period that the question of diagnosis is of most interest.

First.—Those of sudden onset:

(a) Paralysis or spasm of various distribution, including and perhaps limited to the ocular muscles, causing diplopia. These may not be

2. *Brain*, 1907, p. 337.

accompanied by sensory changes or these latter may predominate. They usually attain their highest point and begin to recede within from a few hours to a few days and may either wholly or partially disappear to recur from time to time at shorter and shorter intervals, in which recovery tends to become less and less complete.

(b) There may be epileptiform attacks, with foaming at the mouth and tongue biting or apoplectiform strokes with hemiplegia which usually completely disappears in a few days.

(c) Sudden temporary disturbances of vision other than diplopia, with or without vertigo.

Second.—Acute or subacute onset. With the exception of the epileptiform and apoplectiform seizures, any or all of the above symptoms may require from a few days to several weeks to reach their highest point and then slowly recede to recur after a varying period.

Third.—Those with chronic onset, the most common type being some form of progressive spastic paraplegia, in which perhaps for some years there may be no sensory symptoms or sphincter involvement.

Progressive weakness may be limited to only one leg at first. Visual defect in which fundus changes are sooner or later manifest belong under 2 and 3.

In conclusion, it may be said, when a given symptom points strongly to disease of the nervous system, but can not be classified with other well-known diseases, insular sclerosis and brain tumor should be kept prominently in mind, as they may give rise to a wide range of symptoms even more diverse than the variety of structures which are the seat of the pathological process, would seem to justify.

THE COURSE, PROGNOSIS AND TREATMENT OF MULTIPLE SCLEROSIS.*

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The course which a case of multiple sclerosis may pursue and the length of time over which it may extend depends to some extent on the age of the individual. As a rule the disease pursues a chronic course in the younger extending over a period of 5, 10 or even 15 years, as the chances for the disease to become arrested are better than in later life and thus less likely to become progressive in form. However, cases in children have been reported where death took place from this disease, the beginning of which, perhaps, dated back a few months only, at which time there was a history of some acute infectious disease, such as typhoid fever. In such cases, however, some doubt may properly arise in our minds as to whether or not the disease had not existed undiagnosed previous to the typhoid or perhaps it was a case of myelo-encephalitis rather than a case of multiple sclerosis, although Marburg reported one or two cases as proven by autopsy to be multiple sclerosis, which ran a rapid

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course and terminated in about one year's time. The course may also depend on the part of the central nervous system involved. The disease may be confined chiefly to the latent areas and remain undiagnosed for a long period. It may produce a type of disease closely resembling primary spastic paraplegia, in which case it pursues a chronic course. If it assumes an amyotrophic lateral type the outlook is not so good, and still shorter will be the course if the posterior columns also become involved, presenting somewhat the picture of a chronic myelitis, where there are disturbances of the bladder functions and the development of bedsores to hasten the course. So also if the medulla becomes the seat of the sclerotic patches may death be caused by the disturbances of deglutition and its consequences or by respiratory disturbances. In the hemiplegic type, sudden terminations by hemorrhages may arise. Likewise those so closely resembling paralytic dementia are liable to sudden termination. With all these possibilities to be considered, yet one of the characteristics of this disease is the tendency to remissions, extending over a few weeks, months or even years, during which period the conditions remain unchanged, or the patient may improve to such an extent and for such a length of time that he may be pronounced cured. Oppenheim mentions two or three cases where all the symptoms subsided and after the lapse of five to ten years nothing of the disease was noticeable. He also observed a case in a woman, as reported by Maas, his assistant, in whom the symptoms were in abeyance for a period of thirteen years, only to return. It is probable that the so-called "cured" cases of Charcot were of this type. These periods of progress and remissions may occur spontaneously or the disease may assume renewed activity following some acute illness, trauma, infection, shock, fright, exposure or the puerperal state. The prognosis, therefore, as the course, depends on whether the disease is of the progressive type or characterized by periods of remissions. In the former instance the patient usually succumbs within two years. In the latter case the disease may extend over five to fifteen years. The involvement of sphincters renders the prognosis more grave. Recurrent attacks of infections are of bad influence.

As to treatment, the important factors to be considered are rest and proper nutrition and elimination. Rest, in the sense that overexertion must at all times be avoided. In hospital treatment, unless the disease is far advanced, I believe that some of these patients do better when they are allowed their clothes rather than keeping them absolutely quiet in bed, as the spasticity does not seem to progress so rapidly. However, where there is a marked cystitis or decubitus present this is not practical. Warm baths (not hot baths) are of value in aiding the elimination and favorably influencing the spasticity. Fraenkel's exercises are of service in the ataxic states. Electricity is only of benefit from a psychic standpoint and may do good in those subjects combined with hysteria. Massage may be of service in preserving the nutrition, especially in those cases involving the central nutrition of the muscles. Eichorst, in his clinic at Zurich, tried the suspension treatment in a few cases with decided improvement in the speech and tremor in two of them, both of whom showed a relapse in six months. These patients do better in a mild, equable climate. As to the medicinal side of the treatment there

is still less to say. In this day of medicinal agnosticism, when one hears a leading surgeon make the statement that he would be tempted to shoot the doctor who would dare give him a dose of strychnia under any circumstances, were he suffering from pneumonia, what can be said as to the value of drugs in this disease?

While a few preparations, such as arsenic, silver nitrate, potassium iodid, quinin and solanin, have been regarded as of value, their reputation has no doubt arisen because of their administration simultaneously with the usual remissions of the disease. Complications, such as cystitis, pyelonephrosis, bedsores, etc., must, of course, be met as they arise.

DISCUSSION.

1. Etiology and Pathology. Report of Two Cases with Autopsy and Lantern Slide Demonstration, by Dr. Peter Bassoe. 2. Signs and Symptoms, by Dr. William Healy. 3. Ocular Signs and Symptoms, by Dr. Henry Gradle. 4. Different Diagnosis, by Dr. Sanger Brown. 5. Course, Prognosis and Treatment, by Dr. George W. Hall.

Dr. William Healy:—With regard to the abdominal reflex so much discussed nowadays in relation to multiple sclerosis, on looking up the literature of the subject one finds extensive accord with the opinion of Mueller, viz., that this reflex is absent in a very large share of the cases quite early in the disease. Quite a number of men have worked on this subject, Englishmen as well as Germans, and they have collected a good many hundred cases and consequently their word must be taken as worth a great deal. On the other hand, it seems even better demonstrated that the abdominal reflex can be found almost always present in the young people if the proper technique is used. A couple of German investigators examined 3,000 individuals, 1,000 of them being consecutive cases taken from the army. In the latter series the reflex was present in every instance but one, and in that case there was suspicion of organic nervous disease. The general opinion of these men is that the reflex is found practically always in people under fifty who have not nervous or abdominal disease and that in 80 to 90 per cent. of the early cases of multiple sclerosis it is abnormal.

In making the test the patient stands leaning forward so that the abdominal muscles are relaxed. His attention is distracted as much as possible so as to exclude mental effect. One investigator uses the dull end of a pencil, which he says is effective in the majority of cases, but in exceptional cases finds it necessary to use the sharp end of the pencil. The abdominal reflex has been divided into the upper and lower, the epigastric and abdominal. The stroking is done in a line with the mammæ and just below the costal arch for the upper or epigastric reflex, and below the umbilicus for the lower or abdominal reflex. The umbilicus itself deviates towards the side on which the stroking is done as the result of the contraction of the muscles influenced by the sensory stimulus.

THE COMMONER FORMS OF EYEBALL INJURIES.*

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All surgeons are compelled, from time to time, to deal with ordinary eyeball injuries extending in character from the removal of an embedded cinder to those more serious accidents requiring the enucleation of an eyeball. The general practitioner usually sees these cases first, particu-

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larly if he happens to live in small towns or cities, and, inasmuch as the first care of such cases is of utmost importance, he should be qualified to render proper service, and it is with the hope of offering some assistance along these lines with a few practical suggestions that this paper has been written.

Small foreign bodies frequently find lodgment either on the under surface of the upper lid or in the eyeball itself. If the former is the case, the lid should, of course, be turned over and the speck removed with a clean handkerchief or some cotton wound on a match or cotton carrier. A foreign body may stick and lodge in the scleral conjunctiva, or usually the cornea, under which circumstances its removal becomes a matter of much greater importance. The removal of foreign bodies from the cornea is a little operation of extreme delicacy and one that should never be performed thoughtlessly. It should always be remembered that while the epithelial shell of the cornea is strong and protecting in its character, yet, once this membrane is perforated, even slightly, the underlying laminae become most easily infected by contact with poisonous micro-organisms. It is highly important, therefore, that cinders, emery, sand, etc., that have become lodged in the cornea should be removed with speed before the underlying and surrounding tissues have become ulcerated, and with care, that infection may not be produced by the surgeon himself.

It is first necessary to be sure of the existence of the foreign body, and this is sometimes not easily determined, as the intruder may be exceedingly small and of such color as to be hard to discover. The cornea should be examined by a strong light, either natural or artificial, and a powerful convex lens should be used to focus the light on the cornea, while the surface is carefully inspected under the other magnifying glass. For still further careful examination a drop of 2 per cent. solution of fluorescein may be dropped on the cornea, which will disclose the existence of rough or ulcerated places by retaining the color of the solution after the residue of the drop has been flushed or wiped away. It may be necessary to have the patient move the eye in all possible directions, so that the foreign body is brought into just the light which will disclose its presence, and care should be taken not to confuse pigment spots in the iris with objects embedded in the cornea. This can be done by examining the cornea in profile under strong illumination and a magnifying glass. The fluorescein solution is also an excellent method of detecting the presence and extent of abraded or ulcerated corneal patches, as it stains all denuded surfaces and does not stain intact corneal tissue. By thus defining the abraded areas, small patches may not only be discovered, but, as the diseased surface is clearly defined, it can be easily kept under observation for treatment, cauterization, etc.

After the presence of a foreign body in the cornea has been established, steps must be taken for its removal, and let no one underestimate the importance of this little and oft-repeated surgical procedure, for many an eye has been lost as a consequence of improper and unclean methods. A large proportion of such accidents occur in shops where

flying particles of steel, emery, etc., find easy lodgment in the eyes of the workmen. In most shops will be found a man who has acquired a reputation for skill in the removal of foreign bodies from the eye, and who has always on hand a rough tool or two which he uses for such work. No attempt is made at aseptic precautions, and it is astonishing how many eyes survive such dirty and rough procedures; this wonderment is emphasized when these eyes are afterward seen by the surgeon and the amount of corneal abrasion is noted. The eyes of workmen are often invaded by foreign bodies, which are removed in this manner by the "shop oculist," and the result of such poor work can frequently be seen in multiple corneal scars, which inevitably diminish vision more and more in direct ratio with the number and extent of the scars. I saw, not long ago, a man who lost the vision of one eye by submitting to such procedures, by a fellow-workman, who was suffering from gonorrhoea, and have seen many eyes that have been lost from infections produced by the removal of foreign bodies from eyes under unclean and unfortunate conditions.

The first thing, then, to be observed in such work is cleanliness, not to say asepsis. The hands of the surgeon should be clean and the skin around the eye should be washed, the conjunctiva should be flushed with sterile water or, better still, with mild boric or bichlorid solution, and I usually drop in the eye before and after the little operation a small quantity of a 25 per cent. solution of argyrol. The eye should be cocaineized so that the intruder may be removed painlessly, and, what is of even greater importance, so that the patient can hold his eye still, for a cornea will become greatly scratched and mutilated if an attempt is made to remove a foreign body from its tissue without the use of local anaesthesia.

In case the foreign body is so deeply embedded that simple appliances prove ineffectual, the surgeon may use a slender instrument called a spud or, what I prefer, a Graefe's cataract knife, for the removal. The ordinary spud is, for my purpose at least, too blunt and clumsy in the point to get under and shell out the average foreign body, and I have ascertained by experience that this can be better accomplished by the sharp and delicately pointed Graefe's cataract knife. Either instrument should, of course, be carefully cleansed, dipped in a 95 per cent. solution of carbolic acid and wiped before it is used, and care should be taken not to scratch or mutilate the cornea any more than is positively necessary. Caution should also be exercised that the head and eye of the patient is kept quiet and that the knife does not penetrate the cornea, as might easily happen should a sudden head or eye movement occur. Ample illumination and a magnifying glass are essential to accurate work, the best light being good daylight, and the patient should sit in a chair, with the head resting on a headrest or the body of the surgeon, who should stand behind the patient. Most foreign bodies can be easily removed in this way, but some will be so deeply embedded as to be removable only with considerable skill and patience, and some will break up into smaller particles before the last remnants have disappeared. It happens with extreme rarity that a foreign body becomes so deeply

lodged in the cornea that efforts for its removal will force it completely through the corneal tissues into the anterior chamber, and such rare accidents are usually the result of bungling maneuvers on the part of the surgeon, and it should be borne in mind that in case a foreign body has nearly disappeared through the cornea and into the anterior chamber that before an attempt is made at its removal a broad Graefe's cataract knife should be plunged through the cornea and under the foreign body for the purpose of forming a support to prevent its slipping through into the anterior chamber. Of course, problems like these are materially mitigated if the foreign body is steel or iron, for under these circumstances the Haab or Hirschberg magnet will usually extract them without difficulty. It often happens that cinders, emery and other hot particles will actually burn themselves into the corneal tissues and leave a brownish eschar after the foreign body has been removed. Many patients and even surgeons who see this brown speck are convinced that it is a foreign body to which, indeed, it bears a close resemblance, but a careful examination under a magnifying glass will disclose its identity. It is best to remove such eschars by lifting them out with the small knife, and then to cauterize the underlying tissue with carbolic acid, although many surgeons allow the little eschar to drop off without interference, which, as a rule, will produce a good result. In many cases, however, the eschar acts as a foreign body and produces much irritation, and sometimes ulceration, for which reasons I habitually remove them.

It sometimes happens that fragments of glass will lodge in the cornea or other portions of the eye, producing a clean incised wound, with flaps which are often very much cut under. Such foreign bodies are often very difficult to see on account of their transparency and should be searched for under strong illumination and at many angles where suspicion of their existence obtains. Fortunately, glass fragments do not often remain in the eye, even if the eye has been struck by them, and I can truthfully say that, while I have searched for glass projectiles many times, I have very seldom found them.

It is, of course, quite impossible to enumerate the infinite variety of foreign bodies that may attack the eye and remain lodged in some portion of the cornea or conjunctiva, but the descriptions already given of the usual clinical picture presented in the case of such ordinary bodies as cinders, emery, steel fragments, etc., will perhaps serve as sufficient exposition of their appearance and history to cover that of unmentioned flying particles.

Were it not for the formation of corneal scars after injuries, traumas to the corneal tissue would not be of such keen significance, but, as all opacities of this important membrane are accompanied by more or less deterioration of vision, it follows that surgeons should limit the destruction of corneal tissue as much as possible, for all such denuded areas become invariably opaque during and after healing has occurred. Of course, the location of such cicatrices has much to do with the degree of visual defectiveness, as scars situated directly in the center of the cornea, exactly in range of the best vision, will naturally interfere much more

with seeing than if the opacity is located near the corneal periphery, in the neighborhood of the sclerocorneal junction, where the iritic curtain precludes the passage of light rays through the cornea to the receptive retina.

The essential object to be attained, therefore, in all corneal injuries, and especially those located in or near the center of the cornea, is to limit the destruction of the tissue to the smallest possible area in order that vision may be interfered with as little as possible. In order that this work may be accomplished to the best advantage, it is essential that the location, character and extent of the abrasions be clearly seen and defined, and this can be best accomplished by the use of a drop of a 2 per cent. solution of fluorescein, as previously described. If the abrasion is of recent origin and not ulcerative in character, a mild antiseptic wash, such as a 2 per cent. solution of boracic acid or a 10 per cent. solution of argyrol, will probably be all that is required in the way of medication, supplemented by cold compresses and ocular rest and quiet, in order to permit of the re-establishment of new epithelium; but if the abrasion shows an infective or sloughy character, and if some ciliary infection is beginning to show itself, the eye should be cocainized, and the infective area should be cauterized with tincture of iodine, carbolic acid, or something of this nature, after which a 1 per cent. solution of atropin and a 25 per cent. solution of argyrol should be used, both at the office and the house, and the patient directed to keep quiet and to use freely very hot water fomentations.

Sometimes these cases will not present themselves until the ulceration is very deep, the iritic inflammation very marked, with perhaps iritic adhesions between the iris and lens capsule, and pus commencing to appear in the anterior chamber. The case has now become very grave, and prompt action and hospital care should be instituted. The ulcer should be thoroughly curetted and cauterized with carbolic or nitric acid, or possibly the actual cautery; a 2 per cent. solution of atropin should be dropped in the eye four, five or six times a day; a dionin solution instilled once a day (5 per cent.); a 25 per cent. solution of argyrol should be used four times a day and very hot water fomentations used several hours a day, and a Cr d  ointment poultice on the eye at night has shown many remarkable results in St. Luke's Hospital. The eye should, of course, be kept clean, the bowels and kidneys open, the diet low but nourishing and the patient kept quiet in a somewhat darkened room. Great benefit is often seen from pilocarpin sweats and the subconjunctival injection of a sterile salt solution, and it is well to administer large doses of the salicylate of soda. But the further prosecution of this subject opens up the vast field of general infective panophthalmitis, etc., with the usual direful consequences, and this is far beyond the scope intended in this paper.

The conservative treatment of severe injuries to the eyeball is a subject of great interest to surgeons, as such cases are constantly presenting themselves for care and advice. The importance of the eye for visual and cosmetic purposes is, of course, too well understood to warrant dis-

cussion, and it is, therefore, a foregone conclusion that every reasonable effort should be made to retain this important organ in as nearly a perfect condition as possible, both for its seeing qualities and also for the proper adornment of the human face. Nevertheless, in the enthusiasm for the preservation of an eyeball after a severe ocular injury, the surgeon should endeavor not to retain in the socket an eye which has not only been destroyed so far as visual purposes are concerned, and been mangled far past the beauty point, but also reached a pathologic condition where it has become a probable menace to the safety of the sole remaining eye. This, then, is what I mean by *conservatism* in the treatment of severe ocular injuries, and it often requires considerable experience and no little judgment to skilfully stand between the extremes of endeavoring to save too many eyes or of endeavoring to save too few. It can not be denied that many eyes are enucleated that by patience and skilful care might have been saved, and this course of ruthlessly sacrificing all eyes which are severely injured can not be too strenuously deprecated. Extreme ocular traumas usually occur in workingmen, and railroads, machine shops, wire shops, etc., furnish a large proportion of these injuries. Certain argumentative considerations naturally present themselves upon the examination of severe bulbar accidents. In the first place, an enucleation is clearly the easiest way out of the trouble, as it is much more difficult to save an eye than to remove it and requires much less time in the hospital, usually less expense to the patient or corporation, and enables the patient to resume work in a much more expeditious manner. Time and money are thus almost invariably saved by removing a badly injured eye rather than by making an effort for its salvation, a process which often lasts for weeks or even months, and is then frequently crowned by failure and a necessary eyeball enucleation.

Such a termination of a protracted case is a humiliation to the surgeon and a disappointment to all parties concerned, and will frequently find the patient and his friends utterly opposed to the operation, while at first, under the influence of the physical and moral suffering and shock of the accident, they would, with almost invariable readiness, have acceded to any operative procedure proposed by the surgeon. At this juncture the patient often begins to wander from one office to the other, frequently into the hands of quacks who promise to effect a cure. Needless money is spent, valuable time consumed, and sometimes serious results, such as meningitis or sympathetic ophthalmia, follow, carrying with them a depressing lesson of the consequences of extreme conservatism and caution. Nevertheless, it should not be forgotten that, as a rule, the surgeon renders himself less liable to adverse criticisms if he, whenever it is at all possible, extends to the patient a probationary period of at least a few days of active endeavor before he positively advises an eyeball enucleation, and reasonable patients usually feel much more reconciled to such a procedure, if it has been preceded by a brief, active and manifest effort at ocular salvation. It must likewise be remembered that while we hold the bug-a-boo of meningitis and sympa-

thetic ophthalmia over our patients' heads, as a menace and as a legitimate means of inducing them to agree to our wishes and to establish ourselves on firm ground in case of ultimate misfortune, these terminations of severe ocular injuries are in reality most remote in their probabilities. Do not misunderstand me as endeavoring to minimize their real importance nor to underestimate their direful history when they actually appear. I believe that they should always be kept in mind and should invariably assist us in the formation of our counsel to patients, but I likewise believe that their occurrence is of extreme infrequency, as in a tolerably active practice of about twenty years in eye surgery I have never seen a case of meningitis proceeding from an ocular trauma, and have not seen to exceed three cases of sympathetic ophthalmia.

Cases of purulent panophthalmitis rarely produce meningitis, as before this calamity occurs the pain and suffering become so severe as to induce patients themselves to be quite willing to be relieved by an enucleation, and even to voluntarily beg for such a surgical procedure. The danger of sympathetic ophthalmia, however, is of a more valid character, especially as the condition of the patient is so pitifully distressing, not to say hopeless, after this dreaded disease actually shows itself. It must also be remembered that severe ocular traumas usually occur in laboring men of limited intelligence and means and of migratory habits, roaming from one city to another and from one surgeon to the other, and that they are quite inclined to seek the advice of quacks whose counsel is usually of the worst possible character. It is, therefore, on the whole, unsafe to allow such patients to get away from proper surgical advice with a really menacing unenucleated eye *in situ*, as sympathetic ophthalmia is a most insidious foe and one that should be avoided where real danger exists. In a case of severe ocular trauma, where, perhaps, great laceration has occurred, and where I feel that an enucleation is the proper step to take, I frequently say to my patients that an eye has only two functions, viz.: sight and beauty, and if both these functions have been unfortunately destroyed and the mangled and disfigured eye may also eventually become a menace to the health of the patient, and the safety of the other eye—and will always remain a source of anxiety and care—it is much better to remove it by an operation which will produce a good, full, movable stump, and wear an artificial shell, which, if well fitted, will look better than a disfigured eye and possess quite as much vision. Such arguments rarely fail to produce pliable patients.

The location of the wound should have much to do with our advice either one way or the other, as injuries in the posterior portion of the eye back of the sclero-corneal junction or ciliary region are much less dangerous than those anterior to the ciliary zone, while the most dangerous traumas of all are situated directly in the ciliary region, under which conditions a gloomy prognosis must surely be entertained, as small wounds in this locality are as a rule far more dangerous than even large lacerated injuries in any other situation.

The giant and other magnets, while they have undoubtedly saved many eyes otherwise unsalvageable, have, I think, greatly increased the

danger of sympathetic ophthalmia, as through their mediumship many eyes are spared which may eventually become dangerous, which without the magnet would unquestionably have been removed. Do not misunderstand me as decrying the magnet, for which I have the greatest respect and which has saved more good eyes than it will ever lose, but I do believe that the unwise and unskilful use of the magnet by surgeons who regard it as merely a powerful machine by which steel, etc., can be forcibly extracted from an eye without regard to method has, must and will be responsible for many lamentable results in ocular surgery. If such surgeons would but read the writings of Haab, Hirschberg and others on this interesting subject, in which they deliberately regard this operation when properly performed as the most delicate and difficult in ocular surgery, they would, I am sure, entertain for it a profound respect and would not be so apt to regard it as a mere pulling contest. In this connection, however, I desire to say that I can not entirely subscribe to the teachings of these masters in ophthalmology when they so tenaciously adhere to the anterior avenue of steel removal. If the steel is visible in the anterior segment of the eye, or if it is a very small piece, it is, of course, best to gently draw it into the anterior chamber with the Haab magnet, before the cornea is opened, if possible, and then after the corneal section has been made to remove it with the large magnet or perhaps by a Hirschberg magnet, gently insinuated into the lips of the wound. But if the steel is in the posterior portion of the eye, or is of large size, I believe it is far better to make a proper incision through the sclera, etc., as near the site of the projectile as possible and to draw it out backwards rather than to drag it over the sensitive and vital anatomical elements constituting the anterior segment of the eyeball. I am well aware that much danger lurks in either method and that detached retina and choroid, hemorrhage, escape of vitreous, infection, etc., are to be feared if objects are withdrawn by the scleral opening. But these complications are, I think, less to be feared than will be the case if an effort is made to drag a jagged piece of metal over the ciliary body, around or through the lens, iris and cornea on to the point of a giant magnet, under which circumstances cyclitis and uveitis are greatly to be feared, together with cataract, infection, loss of vitreous, prolapse of iris, etc. For these reasons and others I can not endorse the generally accepted doctrine of almost invariably extracting steel by the anterior route, but feel that many cases will be best operated through the sclera, and believe that each case should be carefully studied by itself. I am also convinced that the best interests of patients is not always served by extracting large pieces of steel from an eye which has been badly mangled and injured past all claims to beauty or utility, and feel that many such eyes had better be enucleated at once, thus saving much time and money and avoiding the subsequent salvation of a sightless, atrophied stump, which must always remain a menace to the safety of the other eye.

It is commonly believed that the Haab magnet is an almost infallible guide as to the presence of steel, etc., within the ocular walls. While it is perhaps true that in a large majority of cases pain will be felt on

the approach of a large magnet to an eye containing steel or iron, this rule is not by any means invariable, as I have myself proven in several cases of enucleated eyeballs where the magnet had been repeatedly tried without eliciting the slightest pain. The piece of steel may be very small or it may be firmly retained in the inner scleral wall, or it may be encysted, under any of which circumstances the magnet may fail to produce pain and the surgeon may erroneously assume the absence of steel. Neither can the *x*-ray picture be relied upon to locate the presence of steel, etc., as I have seen several cases where the photographer found no steel where steel really existed, and at least two cases where he positively diagnosed the presence of steel in the eye where a subsequent enucleation for panophthalmitis clearly disproved his opinion. I would like also to correct a mistaken idea that wounds of the lens are always followed by cataract, as this notion is quite far removed from the truth. I have seen a number of cases where small foreign bodies have passed completely through the lens and dropped into the vitreous chamber, where the injury was only followed by a slight, localized opacity which, in some cases, practically disappeared, and I remember one case where I gently needled a lens for high myopia, hoping to produce a cataract, which was merely followed by a localized opacity where I had perforated the lens.

Before leaving this subject I desire to pay a tribute to a therapeutic remedy that has been my most potent ally in the salvation of many eyes that, I believe, would otherwise have been lost. I refer to the new silver preparations, and especially to argyrol and Credé's ointment. These remedies I have grown by experience to regard as almost indispensable in menacing ocular injuries. I first began using argyrol in the varying grades of purulent or mucopurulent conjunctivitis, and in cases of abraded or ulcerated cornea and also in infected conditions of the tear passages. It gave greater satisfaction than any drug I have ever used, and, while I do not regard it as invincible in such diseases, I am but rarely disappointed in its use. I then began using it in my operative work, and in cases of cataract, iridectomy, etc., I always endeavor to have a 25 per cent. solution of argyrol dropped into the eye several times a day for about two days before the operation, and since adding this to my other preparatory measures have never had a case of infection. Lately I have been dropping the solution over the field of operations, directly after the operation, in cataract and other bulbar operations, and have never had cause to regret it, and believe that it has played an important part in the production of good results. In cases where I have feared infection I have even allowed a little of the solution to run into the anterior chamber and have never been displeased with the results, as the dark staining wears away in a short time. In cases of severe ocular injury and after a magnet operation I used the solution freely, injecting it not only into the anterior chamber, but into the vitreous chamber, and believe that thereby I have saved many eyes.

I almost hesitate to confide to you my method of using Credé's ointment in dangerously infected eyes, where, perhaps, suppuration has already been firmly established, and yet it is the truth we should seek, and

I have seen such surprising results from the use of this preparation that I feel I should mention it in this paper, even though it is repugnant to our ideas of treating infected suppurating eyes. I usually care for these infected and perhaps suppurating ocular traumas in the orthodox manner; that is, by cold packs, antiseptic irrigation, atropin, argyrol, etc., during the day, but when night comes I direct that the eye be thoroughly cleansed, that argyrol and perhaps atropin be used and anything else done that seems advisable. A thick plaster or poultice of Credé's ointment is then spread upon a piece of gauze which is placed directly over the closed lids and secured in position by a soft bandage. This is allowed to remain all night and is removed in the morning for the resumption of the daily routine treatment. I have never regretted using the ointment, and have seen many eyes saved where such salvation seemed well nigh impossible. The amount of discharge is much lessened and it is surprising when the ointment is removed in the morning to see how clean the eye is and how the small amount of secretion has been drained from the eye to the ointment. I have even used this method of treatment in gonorrhœal ophthalmia and have always been pleased with its effect. In addition to these remedies in all cases of severe eyeball injuries I invariably and promptly place my patient on large doses of salicylate of soda, endeavoring to follow the rule of Gifford of giving them in the twenty-four hours one grain of the drug to each pound of the patient; for instance, I give a man weighing 150 pounds 150 grains of the medicine. I am satisfied that I have seen good results from this plan, although it sometimes produces acute cerebral excitement, which necessitates a temporary suspension of the drug. In menacing cases of eyeball injuries I believe I have also seen good results from a few daily sweat-baths, and this has almost become a routine procedure in instances of this kind.

The space permitted for this paper is, of course, too brief for me to enter fully into the various orthodox methods of caring for ocular traumas, nor is it necessary or desirable, for these details are well understood by you all. I have simply endeavored to discuss with you some of the reason for endeavoring to save eyes and some of the indications for their removal. In addition to this, I have taken the liberty of setting forth to you some particular methods of dealing with important conditions which I have found by personal experience to be most efficacious.

In case it becomes necessary to remove an eyeball, it can best be removed by one of three operations:

First, by the old-fashioned Bonnet operation; second, by the Bonnet operation as modified by myself; third, by the Mules operation.

The original Bonnet operation is the quickest and easiest operation and is indicated where speed is necessary, as in patients who are expected to act badly under an anesthetic, and where the physical appearance is unessential, as in the very aged, etc. It leaves a marked deformity, as no effort is made to produce a movable stump, and a great hollow socket is acquired. My modification of this operation can be used in almost all cases, by which the muscles and conjunctiva are all drawn

together, thus filling in the socket and producing but little deformity and a freely movable stump, which moves the artificial shell in a most beautiful and natural manner. The Mules operation can be performed in selected cases where the physical appearance of the patient is of the utmost importance.

The Bonnet operation is performed as follows: After the insertion of a strong eye speculum, holding the lids firmly apart, the conjunctiva is grasped near the periphery of the cornea at any convenient place, and an opening is made with a pair of curved blunt-pointed scissors. This opening is continued around the cornea until it is completed. The underlying tissues are severed at all points by the scissors, to enable us to pick up and cut the four recti muscles close to their scleral attachments. I would advise you to sever the superior rectus muscle first, as the eye naturally turns up during anesthesia, and if muscles which antagonize the superior rectus are severed first the upward movement is accentuated, and the muscle is then difficult to reach. The superior rectus is first pulled down by a tenotomy hook, exposed and severed, after which the other recti muscles are severed. We do not attempt to find the oblique muscles, as they do not interfere with the expulsion of the globe, and are easily severed, together with the other loose tissue back of the eyeball. After incising the recti muscles the speculum is forced back into the socket, which crowds the eyeball forward, thus enabling us to easily find the optic nerve, which is now the only thing that firmly holds the globe in position. In searching for the optic nerve it is best to proceed from the nasal side of the socket, as it is more readily reached at this point; the two nerves originate at the central optic chiasm and gradually diverge as they pass forward to the eyeballs; thus the nerves are nearer the nasal than the temporal sides of the sockets. The eye should now be firmly grasped by a pair of strong forceps and pulled outward toward the temple, to bring the optic nerve forward as far as possible. An enucleation spoon is passed back into the socket, using the sclera as a guide, and the nerve engaged in the slot of the spoon. This instrument is shaped something like a spoon with the point ground off, and possesses a wide slot through its center which easily accommodates the optic nerve. By cutting the nerve back of the spoon we avoid cutting the sclera, an embarrassing accident which materially hampers the operation by evacuating the vitreous humor and collapsing the globe. After the nerve is engaged a strong pair of curved blunt scissors is introduced close to the sclera, the globe lifted out as far as possible with the spoon, and the nerve severed as far back as possible. The eyeball is then brought forward and all loose tissue, including the two oblique muscles, severed close to the globe, to preserve as much orbital tissue as possible. Some operators catch up the incised conjunctival circle with a purse-string suture; others find the muscles and include them in the sutures, together with the conjunctiva, while others leave the open wound to heal by granulation. If there is no pus in the socket, either of the two former procedures is advisable, as the healing is quicker and more stump mobility is produced; but if pus has been in the socket it is

better to dispense with the sutures. The sutures may be catgut, which need not be removed, or silk, which must be removed in four or five days. After cleaning the parts a bandage is applied and the patient kept quiet for three or four days, the bandage being changed each day and the socket thoroughly cleansed. The patient is usually discharged in about ten days.

It must not be supposed, however, that all enucleation operations can be performed after the ideal method just described. Various complications may embarrass the operation. The eyeball may collapse during the course of the operation, owing to deep corneal ulceration or a partially healed wound of the eyeball. Under such circumstances we must adhere to the essential steps of the operation as nearly as possible, picking up the collapsed sclera with strong forceps and stretching it firmly, to clearly display the site of each operative step; the globe must not be mangled, which would prove an additional embarrassment. Some operators under these circumstances transfix the eyeball with a strong, sharp hook and pull the globe out as far from the socket as the optic nerve will allow, and from side to side, as is necessary to facilitate the different steps of the operation. Others transfix the globe with a strong suture, with which to pull the eye from place to place; while others, who anticipate trouble of this nature, strengthen the weak spot in the eye by including it in a firmly tied suture before attempting the enucleation. The globe may be extensively cut or torn before the operation, with a complete collapse of the globe, rendering the work of its removal embarrassing. The same general directions as have been just given are applicable in such cases, only the difficulties are increased. The principal difficulty is in severing the hidden optic nerve without freely lacerating the globe or surrounding orbital tissue. This difficulty may be overcome by care and coolness, and by firmly pulling the collapsed eyeball away from the socket, and rotating it to one side so as to see as far back in the socket as possible, which procedure will often be rewarded by a fairly good view of the nerve itself, which will, of course, render further progress comparatively easy. Keep close to the sclera, using it as a guide, and employ the scissors in dissection.

Hemorrhage sometimes, though rarely, causes trouble. In exceptional instances it may be even necessary to tie an artery, although this has never occurred to me personally; indeed, in a somewhat extensive experience I have only seen hemorrhage which caused me a moment's anxiety. In case free bleeding occurs, it may usually be controlled by hot bichlorid solution or sterile suprarenal capsule solution or powder.

My modification of the Bonnet operation can be performed as follows: The conjunctiva is divided around the cornea, and as close to the corneal edge as possible, with a pair of curved blunt scissors. The conjunctiva is then raised at different points with forceps, and the scissors are used to freely separate the conjunctiva and capsule of Tenon from the globe. Commencing with the superior rectus, the rectus tendons are picked up upon a strabismus hook. Prince's advancement forceps are then substituted for the hook, which is removed, and made to firmly

hold the entire tendon within its grasp, by closing the fixation spring. The tendon is then cut close to the globe, and any posterior connections between the muscle and globe are likewise severed, so as to allow of free expulsion of the globe and a perfectly loose muscle. A needle and catgut suture are then passed in and out through the muscle tissue, at right angles to its fibers, the needle is removed, and the two catgut ends are allowed to hang until we wish to again pick up the muscle. The forceps are then removed. This procedure is repeated with all four recti muscles, after which the globe is removed as in the ordinary enucleation operation, the spoon and heavy curved scissors being accurately introduced between the globe and the muscles, when the optic nerve is to be severed, being very careful not to cut or injure the muscles during the manipulations. The hemorrhage stopped, the superior and inferior recti muscles are then picked up by the double-headed catgut sutures, brought together and firmly tied, and the loose ends of the sutures cut away. The same is done to the internal recti muscles. The conjunctiva is then picked up and quilted in and out by a needle and catgut suture a few millimeters from its circular cut edge, being careful to dip down and pick up each rectus muscle as it is passed. The suture is then tied and cut. The reaction is usually slight and easily controlled, if necessary, by iced bichlorid solution. The patient should remain in the hospital for about two weeks. This operation makes a movable stump upon which an artificial eye may rest. The socket is well filled, and comparatively little sinking of the lids is observable. Many operators believe that this or some other similar operation supplemented by improved artificial eyes, such as Snellen's, with thick bulging or convexed backs to fill in the cavity and produce close contact with the mobile stump, is destined to become the ideal method, and will entirely supplant all such procedures as Mules' and other similar operations. If this happy result ever materializes, better operations and better artificial eyes will have to be devised, although the operation just described yields desirable stumps.

The Mules operation was devised by Mr. Mules, of England, from whom its name was taken. The idea of the operation is to preserve the muscles and sclera intact, and by placing a hollow glass globe or artificial vitreous inside of the sclera permanently retain it there, producing a globular, prominent stump that will not allow of the shrinking and pinching of the sclera incident to an ordinary evisceration, which is thought to be largely responsible for the occurrence of sympathetic ophthalmia. The operation is performed as follows:

The ordinary circumcorneal incision of the conjunctiva is first made by the curved scissors, and the conjunctiva freely liberated from the sclera for a considerable distance back, in order to provide for a movable conjunctival flap. The anterior segment of the eye just back of the cornea, and well into the scleral tissue, is now transfixed by a Beers' or Graefe's cataract knife, or by any other suitable blade. The incision is completed upward or downward as the surgeon prefers, thus opening one-half of the anterior segment of the eyeball. The other half is now picked up with forceps and cut off by scissors, thus completely ampu-

tating the cornea. This leaves a large round opening in the eye, through which we remove the contents down to the sclera. This is done by a sharp scoop, aided from time to time by a mop of either gauze or cotton firmly twisted on a strong cotton-holder forceps or probe. I say strong, because this cleansing process should be thoroughly done, using more or less force, the object being to leave no fragments of chorioid or anything else attached to the inside of the sclera. Troublesome hemorrhage sometimes occurs during the curetting process, which may usually be controlled by a hot bichlorid solution. After the hemorrhage has practically ceased, the sclera should be prepared for the glass globe by mopping it out with a 95 per cent. solution of carbolic acid, after the method of Dr. A. E. Prince, of Springfield, Ill. The acid may be immediately neutralized by alcohol, although many surgeons omit the latter. In order to make the mouth of the scleral wound coapt evenly, a little wedge-shaped piece may be taken out at two opposite points. This enlargement of the circular aperture also permits of a readier introduction of a suitable sized glass ball. Six or eight hollow balls of various sizes should always be on hand at the operation. They should be sterilized by immersion in 95 per cent. solution of carbolic acid and alcohol, and are then allowed to float in a strong bichlorid solution (1:1000) in a covered bowl until ready for use. The original hollow glass globes devised by Mr. Mules are still popular, although various substitutes have been proposed. The glass globes, when well made, are smooth, light, permanent and strong, important features in such a device. Some surgeons have objected to them, fearing their easy breakage by blows, etc. I will drop this ball upon the stone floor and you will observe that it bounds again and again, and is not broken. I, therefore, regard their breakage in the cushioned socket as almost impossible, and I have never heard of a case where this accident occurred.

Great care should be used in the selection of a globe of proper size, bearing in mind that considerable reaction and swelling usually follow the operation, and that if the artificial vitreous is unduly large the sutures may give way and the globe be expelled, or it may become necessary, through excessive swelling and pain, to liberate the sutures and globe to relieve suffering and avert danger. Neither should we select a ball too small, because we desire to insert a globe sufficiently large to loosely fill the scleral sac, so that a prominent stump may be produced, capable of tolerably well filling the socket, and supporting the artificial eye to be later inserted. We should choose between two extremes and select a ball that readily slips into its place, allows ample scleral tissue for sutures, and permits the sclera to lie loosely around the glass shell.

Having selected the ball, it is taken from the antiseptic fluid, washing it thoroughly meanwhile, and placed in the scleral sac with the fingers, or an instrument especially devised for this purpose. The sclera should then be temporarily drawn over it to ascertain if it is of the proper size; if not, exchanges should be made until a satisfactory ball is found. The scleral sac and its glass contents are now thoroughly irrigated by a bichlorid solution (1:5000), the opening in the sclera being

expanded to permit free ingress of the fluid. The scleral opening is now brought together with strong but fine twisted black silk thread. Catgut sutures should not be used, as they are quickly absorbed and allow an expulsion of the ball. Black thread is better than white for obvious reasons. The scleral opening may be sutured either horizontally or vertically; the choice is immaterial, but I usually elect the vertical meridian and shall do so in this case. The sutures should be set well back into the scleral tissue, so that a firm hold may be obtained, this being a material aid in retaining the ball, in spite of the subsequent reaction. To the same end as many sutures should be inserted as can be conveniently placed in the opening. In twenty-seven cases I have never lost a ball, and I attribute my success to a rigid adherence to the last enumerated suggestions.

The sutures are cut off as close to the knot as is consistent with safety; these sutures are permanent, and they should, therefore, be made as small and unirritating as possible. The conjunctival sutures are now inserted in the opposite direction from the scleral sutures—that is, if the latter have been placed horizontally, the former should be placed vertically, etc. The conjunctival sutures may be of silk or catgut, and five or six are usually sufficient. They should be placed far back in the conjunctiva, in order to encourage a thorough healing at the central point, which is apt to open and expose the sclera, unless care is taken. If the sutures are silk, which I regard as best, they may be carefully cut away in six or seven days; if catgut, they will take care of themselves. The socket should now be thoroughly irrigated with bichlorid solution (1:5000), a pad of cotton applied over the closed lids and secured by a bandage, and the patient kept quietly in bed for several days. Both eyes should be bandaged, in order to keep the operated eye quiet and free from rotation, which would strain the sutures. After three or four days the well eye may be liberated. The eye should be inspected and irrigated each day, and upon the appearance of undue reaction iced bichlorid compresses should be substituted for the bandage, except at night, when the latter may be resumed. The patient should be kept quiet and under close observation for about two weeks, after which our care may be gradually lessened.

I think it unwise to insert an artificial shell for one month at least, as its adjustment and wearing may irritate the stump and open the conjunctival wound. The patient should only wear it occasionally at first, gradually habituating the socket to the artificial prosthesis. It is usually quite difficult to secure a suitable shell for a Mules stump, as artificial eyes are generally manufactured for the old-fashioned empty socket, and are quite unadaptable for the prominent stump of the operation just described. It is frequently necessary to have an eye manufactured to order. When a satisfactory eye is obtained, however, the appearance is life-like. There is none of the sinking invariably present after the old operation, for the lids are well filled out and graceful in their outlines. The shell being brought in apposition to the mobile stump follows every movement of the other eye with promptness and

accuracy. The continual overflow of tears and mucus, and the repulsive drying of the same upon the surface of the shell so uniform with the old operation, is absent after a Miles operation, as the prosthesis is pushed forward by the retained glass ball and brought into close contact with the lids, which allows the secretions to pass over the shell in a natural manner into the lacrimal passages. In fact, the results are so satisfactory and life-like that the patient really suffers very little, if any, deformity, and the surgeon who has once witnessed the undisguised pleasure of a few patients thus saved from lifelong mortification will find it difficult to accustom himself to other operations.

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HEBOSTEOTOMY COMPARED WITH OTHER PROCEDURES IN THE MANAGEMENT OF LABOR IN CONTRACTED PELVES.

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(Abstract.)

Hebosteotomy is a valuable addition to our obstetrical resources in the management of labor in contracted pelves with an anteroposterior diameter not under 7 cm. In higher grades of pelvic contraction Cesarean section is indicated. The maternal mortality is about the same in both operations, 4 to 5 per cent. The infant mortality in hebosteotomy is 7 per cent, and in Cesarean section 1 per cent. The conditions necessary to secure good results are, first, avoidance of improper attempts at delivery, especially high forceps; second, perfect asepsis of the obstetrical canal.

Contraindications for both hebosteotomy and Cesarean section are, first and chiefly, the presence of infection, either developed or seriously threatened. Here high forceps, version or perforation are necessary. Second, the refusal of the patient. Here we must consider also the prophylactic methods of delivery, namely, prophylactic version, and when possible induction of premature labor. Prophylactic version is valuable in flat pelves of moderate degree of contraction or with a small child.

Induction of premature labor gives good results, first, when it is done at the right time, as a rule not before the thirty-sixth week; second, when the pelvis is not too small, $7\frac{1}{2}$ to 8 cm. conjugata vera; third, when the proper technic is chosen—(a) in flat pelves, dilatation with the metreurynter and prophylactic version, (b) in generally contracted pelves use bougie and wait for spontaneous labor.

Professor Pfannenstiel reports 50 cases of induction of premature labor in the last three years, with no maternal deaths and 98 per cent. of the children born alive and 82 per cent. of the living children discharged from hospital. Hebosteotomy should be done only by a specially prepared physician and when possible in a hospital.

The technic is as follows: On one side in the groove between the labium minus and labium majus an incision about 1½ cm. long parallel to the descending ramus of the pubes is made down to the bone. The soft parts, particularly the crus clitoridis and the soft parts lying behind the pubic bone, are separated partly with a bone elevator and partly with the fingers. Then a Bumm needle is introduced from below upward to the tubercle of the pubis, the saw attached, pulled through and the bone sawed through subcutaneously. Thereupon the small wounds below and above are closed with silkworm gut suture and the patient is delivered either by forceps, version or by foot extraction in breech presentation.

It is very important to protect the soft parts when divided bones separate and not allow this wound to communicate with wounds in the vagina. In a primipara with a narrow vagina, a perineovaginal incision on the same side as the bone incision is a good way to prevent extensive tears extending into the region of the bone lesions.

PUBLIC HEALTH LAWS IN ILLINOIS.*

HENRY B. HEMENWAY, A.M., M.D.

EVANSTON, ILL.

The present status of the public health service in Illinois is very far from satisfactory. Looking the subject squarely in the face, it must be admitted that much of the blame for the present condition of affairs may be justly laid up against the ignorance and carelessness of the medical profession. A layman, who has been long in official life, in speaking of a certain medical officer, said: "You can not expect a man to neglect his private work all the time for the pittance which is paid in that office. If the physicians of the community should make a united protest, a salary would be allowed which would be more adequate. The fact is that, for some reason, it may," he said, "be personal jealousy, the physicians of the community have never unitedly spoken on the subject."

Public health work is to-day almost a profession by itself. Columbia University is now preparing to establish a special course in this line of education. In addition to special knowledge, it requires the education and training of a practitioner of medicine. The health official should have had years of practical experience as a physician. On the other hand, there is little which a physician may learn in this public service which could help him financially in private practice. His public duty is to prevent sickness, and, if he is successful, that fact would tend to decrease the amount of practice in the cure of disease. In this country private practitioners are paid only for the treatment of disease, not for its prevention. With practically no exceptions, physicians who devote their time and training to public health work are underpaid.

Every health official of a community of ten thousand or more population should be paid a salary which will permit him to devote his whole time to public health work. While he should have had the training of

* Read at the Evanston Branch, Chicago Medical Society, June 25, 1908.

general practice, he should not continue in such practice. No man can successfully attend to both of these branches at the same time. The practitioner must be constantly prejudiced in his official duties, and he spends time in the study of therapeutics which should be given to original investigation and to the science of epidemiology. Public lectures, or school instruction in public sanitation, are a legitimate field for official use of extra time. It is quite possible that such teaching would improve the administration not only by gaining the sympathy of the people, but more by the education of the official. It is a poor teacher, indeed, who does not learn by attempting to impart his knowledge to others.

Neither is there in Illinois an incentive to good work in the hope of advancement. With different laws a man might be willing to do efficient service in a smaller city, in the hope that, having made a reputation, he would be called to a larger place. Chapter 24, Article VI, Section 6, of the Illinois Statutes says: "No person shall be eligible to any office who is not a qualified elector of the city or village, and who shall not have resided therein at least one year next preceding his election or appointment. Nor shall any person be eligible to any office who is a defaulter to the corporation: Provided, however, this shall not apply to the appointment or election of city engineer in incorporated cities and villages; and provided that the same shall not apply to appointment of attorneys in incorporated villages, if such appointee be not a defaulter to the corporation." This law should be amended at the next session of the legislature by striking out all that portion following the words, "Provided, however, this act shall not apply to the appointment or election," and substituting therefor the words, "to any such an office in an incorporated city or village as shall require a special or technical education or training, if such appointee be not a defaulter to the corporation." As it now stands it is doubtful if it be not unconstitutional as class legislation.

It must be evident to every thinking man that there is less excuse for making an exception of attorneys than for excepting sanitary officers. A large proportion of lawyers are well posted on corporation law, whereas very few physicians know much of public sanitation. The statutory exception should be general. There may be a decided advantage in importing the head of a police or fire department for a small city. That is practically the only way in which a poor department may be brought up to standard. If the public services of physicians are underpaid in comparison with other lines, the private practice of the members of the profession will be equally undervalued. It takes a better education and a more extended training to be a good city commissioner of health than to be an equally good corporation counsel, but the city of Evanston, for example, pays annually \$3,300 for attorneys' services and only \$600 for a commissioner of health. Is human life and health of so little value in comparison with dollars that the community is willing to run needless risks of disease to safeguard a possible loss of money?

The laws of Illinois do not compel a city to have a department of health. The city has the power, according to Chapter 24, Article VI, Section 2, to appoint or elect a commissioner of health, but it is not obliged to do so. In the same chapter, Article V, Section 1, Paragraph

76 says that the city council shall have the power to appoint a board of health and prescribe its duties, but it does not make obligatory upon the city the election or appointment of any sort of a department of health.

Turning now to the larger community, we find that the laws in no way favor an efficient state health administration. Chapter 126a, Section 1, says: "That the governor, with the advice and consent of the senate, shall appoint seven persons who shall constitute the board of health." There is nothing in this, or in any other section, which in any way suggests that any member of this board should have the education of a physician. In the past the board has not been composed entirely of physicians. Another section says that the secretary of the board shall be the executive officer of the board, but even he need not in any way have any knowledge of medicine or of sanitary science. There is nothing in the statutes of the state to prevent the appointment of a board composed entirely of Christian Scientists, osteopaths and veterinary surgeons. Such a possibility does not seem so remote when we remember the dire consequences during our war with Spain of the appointment of a veterinary practitioner as a corps surgeon over experienced physicians and surgeons. During the recent meeting of the American Academy of Medicine members from New York and California expressed the greatest surprise that any state should be so far behind the times as to have the state board of health also the examining board for license to practice medicine, yet this is the case in Illinois to-day. We can not have an efficient health service without properly guarding the practice of medicine.

The American Academy of Medicine has a committee which is attempting to get uniform laws in the several states governing the practice of medicine. During the discussion of their proposed law, a representative of the Illinois State Board of Health opposed the section which provided that the governor should appoint members of the examining board from a list proposed by the incorporated state medical societies. He said that in Illinois such a law would be unconstitutional and it would also be an insult to the governor. Why a man in his position should publicly make so erroneous a statement is beyond comprehension. Like many other dicta of the present board, this statement was made *ex cathedra*, as it were, without attempting to give any evidence or citing any case in support of his statement. Chapter 91, Section 27, provides that: "The governor, with the advice and consent of the senate, shall appoint five persons from among such competent registered pharmacists in the state as have had ten years' practical experience in the dispensing of physicians' prescriptions, and who are actively engaged in the practice of their profession, who shall constitute the board of pharmacy." It further provides that one new member shall be appointed annually, and the section closes with these words: "The Illinois Pharmaceutical Association shall annually report directly to the governor, recommending the names of at least three persons whom said association shall deem best qualified to fill any vacancies which shall occur in said board." This law

has never been shown unconstitutional, nor is there any evidence that it has been considered an insult to the governor.

Sections 10 and 11 of the Constitution provides for appointments by the governor, and Section 12 says: "The governor shall have power to remove any officer whom he may appoint," . . . "and he may declare his office vacant and fill the same as herein provided in other cases of vacancy," but there is nothing in the Constitution which in any way prohibits the legislature from determining what shall be the qualification of any officer. The present laws do specify that dentists, nurses, pharmacists and veterinary surgeons shall compose the boards regulating the practice of their respective branches; but the practice of medicine, the examination to determine the qualifications of candidates for the care of human lives, shall be managed by a board of *seven persons!* Suppose for one minute that a devotee of the cult of Christian Science should be elected to the office of governor! What is to prevent his removal of the present board and the appointment of seven persons to his liking? The practice of law has long been regulated by the legal profession. It is true that the Illinois Statutes do not specify that judges must be selected from practitioners of law, but usage now has the force of law, and a statute requiring such a qualification is common in many states.

The present law regulating the practice of medicine is not designed to give the best results for the people, and it is an insult to the medical profession. Physicians must be the best judges of the qualifications of a medical board, as pharmacists are best qualified to select a board of pharmacy. Free trade, local option and municipal or governmental ownership of corporations should have nothing to do with the selection of a board regulating the practice of medicine, nor with the board of health. Men should be selected for these positions only on account of their professional qualifications, not for their ability to control votes, or work out the schemes of designing political tricksters. It must be remembered that not very long ago a layman was appointed commissioner of health in Chicago solely on account of his ability as a ward politician. It is not to be expected that a board which exists through political pull will have an eye single to the scientific work of the office.

The Illinois State Medical Society, at its last meeting, recommended that a state commissioner of health should be appointed, and every man desiring an efficient service should use his influence to that end. Such an officer should be removed as far as possible from political sway. He should be aided by qualified advisers, and, if need be, all the laws of the state should be revised to make them harmonious. For example, Chapter 24, Paragraph 500, provides that in cities of 5,000 or more inhabitants no person shall be engaged in plumbing who shall not have received a certificate after an examination by a board of three members, one of whom shall be the chairman of the board of health of the city; yet, as previously stated, there is at present no law compelling the appointment of a board of health, and in point of fact in Evanston there is no board of health.

It may not be out of place here to suggest very briefly a scheme for new legislation in place of the present system.

1. The state law should compel the appointment of a commissioner of health for every incorporated city or village, and for every county in the state, providing that the commissioner of the county seat shall be the county commissioner of health. The qualifications for such commissioners should be professional only, and previous residence outside of the county, or even state, should be no bar. As far as possible such offices should be permanent. Ultimately it will be necessary that only those who have passed a special examination in sanitary science should be eligible to such appointment.

2. The governor, with the advice and consent of the senate, should appoint a state commissioner of health for a period of four years. Such appointment should be made from a list of three physicians recommended for that position by the incorporated state medical societies; and it should be the duty of each such society to make such recommendations annually to provide for emergency appointments.

3. Examinations for license to practice medicine, surgery or midwifery should be conducted by a board of physicians appointed by the governor from lists recommended by the incorporated state medical societies; and the same board should control the registration of nurses and the license of embalmers. No examiner should be connected with the teaching force of any college.

4. The "Board" idea must be abandoned. Some one must be made responsible. The Commissioner of Health should be empowered to appoint a competent chemist, a bacteriologist, a veterinarian and other necessary assistants, and the enforcement of the pure food law should be under the supervision of the commissioner of health. One chemist or bacteriologist may do work for all portions of the department. The outbreak of scarlet fever in 1907 was an illustration of the unsatisfactory results of the present system. It should have received the immediate and harmonious investigation of the pure food, veterinary, medical and bacteriological branches. As it was, each probably fearing that he might encroach upon the field of others, no portion of the investigation was thoroughly made.

5. Violations of the various practice acts should be by either the Department of Justice or by the Department of Health, not by the license boards. All county and city commissioners should be subject to the jurisdiction of the state commissioner and should render weekly reports to the state office.

It might be objected that the pure food commissioner should be equal in rank and power to the commissioner of health. Such equality does not seem best, nor does it agree with the present laws. Chapter 126a, Section 2, provides that the state board of health shall have the general supervision of the interests of the health and lives of the people of the state. They may make such rules and regulations and such sanitary investigations as they may deem necessary for the preservation and improvement of the public health, and all officers of the state, county and

city must aid them. Chapter 127b, Section 4, makes it the duty of the pure food commissioner "to enforce all laws that now exist, or that may hereafter be enacted in this state regarding the production, manufacture or sale of dairy products, or adulterations of any article of food." The law provides for the collection and chemical analysis of foods, and Section 7 specially provides "the state board of health may submit to the commissioner, or to any of his assistants, samples of food or drink for examination or analysis, and shall receive special reports, showing the result of such examination or analysis." At present, therefore, it will appear that the pure food commissioner is subordinate to the board of health. With proper officers this condition need not hamper the pure food commissioner in the discharge of his ordinary duties, and it fixes responsibility.

It is perhaps questionable whether the present statutes sufficiently guard against bacterial infection of milk. Tubercular cattle may not to-day be imported into Minnesota or Wisconsin, but they are legally imported into Illinois. The people must be educated to the danger produced by the presence of the large number of these diseased cattle in the state, and this education must be given by physicians.

The registration of vital statistics should be more complete, and should be entirely under the supervision of the health service of the city, county and state. Most physicians are not aware that Illinois is not one of the states whose mortuary records are accepted by the bureau of vital statistics in Washington. The chief statistician at Washington, backed by committees from the American Medical Association and other bodies, will ask the next legislature to enact a more efficient law than the present one. The present law (Chapter 126r, Sec. 22) makes it the duty of every physician practicing in the state to report the death of a patient to the state board of health within thirty days, and (Section 31) provides a penalty in case of neglect to do so, and the penalty is a fine of from ten to one hundred dollars, or imprisonment, or both.

Accurate statistics must be the basis of good sanitation. The sooner that physicians come to realize that the registration of birth and death certificates is a matter of moral, as well as legal, duty the better. The point is well made by the Indiana state board that the physician who attends a confinement has not fulfilled his duty to his patient, for which the patient has paid him, until he has registered the necessary facts by which the child might later prove heirship or legitimacy. The present law, though imperfect, is mandatory. The rendering of birth and death certificates is not a voluntary matter, except as it has been made so by the state board of health.

The above discussion, though far from complete, serves to show that our present state laws relative to sanitation are incomplete and unsatisfactory. Illinois is not prepared to take proper rank with her sister states in the proposed National Department of Health. If we can not set our own house in order, we need expect little influence in the greater work. It is the duty of every physician to assist our local and state committees on legislation to secure the needed changes.

ILLINOIS MEDICAL JOURNAL

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AUGUST, 1908.

ADJUSTMENT OF FEES.

Recently a prominent general practitioner in one of the larger cities of our state read a paper before his county society, in which he complained of the loss which the general practitioner sustains when he refers a case to the surgeon or other specialist. The paper excited considerable discussion, which was rather heated in some of its phases. By some the author was denounced as bidding directly for a commission and by others was defended as standing for a plain injustice which was constantly being done to the family physician. We only mention this occurrence to call attention to an under current of dissatisfaction which exists in all of our communities and which has been especially emphasized during the financial depression of the past nine months. Various reasons have been given to account for this dissatisfaction and various more or less vicious methods have been devised to try to overcome it. We have talked with quite a number of prominent surgeons throughout the state and find that numerous methods are in vogue in an effort to overcome the dissatisfaction which the general practitioner is inclined to attribute to them. Some are said to be offering commissions on cases referred, while others will not pay commissions, but give their friends liberal and frequent presents. Others insist upon the general practitioner becoming an assistant at each operation, for which they allow a liberal fee. Some allow

the general practitioner to collect all fees and give to the surgeon a moderate amount for the operation, leaving to his judgment the desirability of collecting enough in addition to make a substantial residue for the general practitioner. Others follow a plan of cooperation or patent partnership by which the general practitioner transacts all the business with the patient and turns over to the surgeon an amount agreed upon between them. All such plans are more or less objectionable and belittling to members of a great and humanitarian profession and fall far short of the real difficulty. Each one is worthy of his hire and each should be paid fully in proportion to services rendered. There is no doubt that the general practitioner who is giving his patients the best there is in modern medical service is too frequently not getting sufficient remuneration. During the past twenty-five years the cost of living and doing the business of the general practice of medicine has almost if not quite doubled, and competition in practice has greatly increased, while in many localities physicians are charging according to fee bills adopted twenty to thirty years ago. It seems to us that the general practitioner, as we see him in the state at large, has failed to keep his fees and business methods in harmony with the increased demands of living and doing business. The vital question with him should be, how he can increase his remuneration. In addition to the points mentioned, he has been encroached upon by lodge practice, club practice, reduced insurance fees and various other practice. It seems essential that the fees of the general practitioner should be increased at least 30 per cent. in many localities in order to meet the changed conditions, and to this end our organizations should give these questions careful consideration. They should do everything within their power to discourage lodge practice, club practice and insufficient fees and should enter upon a campaign of education to teach the physician how he can get more out of his daily work and teach the public that they are paying an inadequate amount for the services of a modern up-to-date family physician. There are hundreds, even thousands, of physicians who are charging nothing for their diagnostic ability and on whose books no charge can be found for making a diagnosis and rendering an opinion. Office consultations and home visits are charged for at minimum rates and the examination and diagnosis are thrown in. In our opinion, the great mass of our general practitioners are practically saying to their patients, "Examination and diagnosis free." This is certainly one place where the general practitioner should make a radical change in his method of transacting business. He should give his patrons to understand that the most important service which he performs for them is the making of a thorough examination and arriving at a correct diagnosis on which to base a valuable opinion, and he should never neglect to charge a separate fee for this service which should be commensurate with the importance of the case. If each one charged and received a good and adequate fee for the examination and diagnosis on which he based his opinion and advice that a surgical operation was necessary he would not feel so aggrieved when he saw his brother surgeon receive a good and adequate fee for the operation. If this plan

was pursued by the general practitioner as it is by the specialist, he would see on his books almost every day a separate fee of \$5 to \$25 for this very important, distinct and separate service, and at the end of the year he would find his income substantially increased, not to say anything of the great satisfaction from these more careful and painstaking investigations, instead of hurrying from door to door and counting his day's business by the number of visits he has made or the number of patients who have visited his office. To thoroughly and completely examine one patient is worth more (dollars) to that patient than twenty hurried visits are to twenty patients. In addition to this, it has been suggested, and we believe with some degree of justice, that such diseases as typhoid fever, pneumonia, scarlet fever and the like should not be charged by the visit alone. To carry a patient safely through such a disease is worthy of a separate fee not to be estimated simply by visits and bottles and boxes. If it is worth \$200 to \$500 for a surgeon to successfully treat a case of appendicitis is it worth less for a general practitioner to successfully treat a case of typhoid fever, or is it a matter of any real importance to the patient whether the doctor makes ten or forty visits as long as he makes all which are necessary to attend the case properly?

A NEW ORGANIZATION.

The physicians of the state have recently received a letter signed by the secretary of the Physicians' League of Illinois asking them to become members of a new organization. The reason for the existence of the league, as set forth in the circular letter, is on account of "the lack of harmony among physicians as at present organized. Its desire is to obtain for the doctors more stable recognition before the next legislature in regard to important medical legislation, namely, the desirability of a medical department in connection with the University of Illinois; second, the desirability of an epileptic colony; third, hospital for incurables; fourth, the question of improvement of the present system of the State Board of Charities; fifth, state control of tuberculosis."

The right of any body of men to organize for any legitimate purpose can not reasonably be questioned. The wisdom or necessity of the proposed organization of the Physicians' League of Illinois may well be, in view of the fact that it is the function of the state society to do the very things advocated by the proposed league. Their success can only result in one of two things—displacing the state society, or working in opposition to or at cross purposes with the profession as at present organized. The statement that there is a lack of harmony among physicians is misleading and not in accordance with the facts, if we are to understand that reference is made to the state society. This society never was so well organized or more harmonious than at present. The results achieved in the way of legislation, while not as great as might be desired, have been as successful as could reasonably be expected. The numerous inquiries received from physicians throughout the state indicate that

the profession generally question the sincerity of the movement and all regard it as unnecessary and ill-advised. Members of the Illinois State Medical Society will do well to withhold their support of the proposed league pending further investigation.

PUBLIC LECTURES CONDUCTED UNDER THE AUSPICES OF THE COUNTY SOCIETY.

Dr. William L. Baum, in his presidential address to the House of Delegates at the Peoria meeting of the Illinois State Medical Society, incorporated a recommendation that the county organizations "institute a series of public lectures on subjects pertaining to matters of public interest and in which the medical profession alone is competent to give instruction." In the July issue we published Dr. Baum's address (page 1). Dr. Baum states: "The public stands in need of such instruction and is eager to receive it. The dangers and the prophylaxis of contagious diseases, public sanitation, the milk problem, the management and treatment of tuberculosis, and many other topics may be selected for discussion. It might be well for the society to submit to the county organizations a lecture schedule, the lectures to be delivered by physicians resident in the county and also non-resident. I would recommend the appointment of a committee to consider this subject and present a plan for the consideration of the membership."

The Chicago Medical Society has already conducted public lectures for the past year and a half. These lectures have met with very great success and have been the means of disseminating knowledge among the people regarding the rules and regulations of public health that have materially aided the Department of Health in combating and eliminating contagious and infectious diseases. We dare not forecast the possibilities for the public health which will be obtained when the people will cooperate more fully with the medical profession in the control of infectious diseases. The stamping out of preventable diseases can not be accomplished without the support of the people. Just as the family physician has been, and always will be, the closest advisor of the family in matters of domestic health, so will he be the teacher of his families in matters relative to the control of those diseases which are communicated by contact.

The recommendation of Dr. Baum to establish courses of public lectures, under the auspices of the various county societies, marks a new era in the progress of medicine in the State of Illinois. We believe, with Dr. Baum, that these lectures should be largely given by the local profession in each community. There is no locality but what contains several men, at least, who will be able to give a paper of interest and instruction to the laymen, and it is right that this means should be used. The community in which these men live will hold them in greater respect and it will aid them in their own work. We are sanguine in our hopes that the committee which has the matter of public lectures in hand will accomplish a great work during this coming year. *YOUR JOURNAL* stands ready to do anything that it can to further this work.

DOES A DOCTOR'S VACATION PAY?

This season of the year brings a general relaxation in commercial lines and freedom from certain diseases due to inclement weather. Opportunity is given the physician to cease his vigorous activities and ponder over the many cases he has been permitted to attend in the last twelve months. This year has brought to our state not only our regular meeting of the Illinois State Medical Society, but likewise the annual gathering of the American Medical Association. Not a few physicians throughout the state have taken advantage of one or both of these conventions to get away from their regular routine work and to rub elbows with their confrères. We have written previously of the benefit derived from such gatherings, but, after all, the doctor is not getting away from shop talk. Large commercial enterprises have recognized the necessity of a complete relaxation from business in providing vacations for their employés. Constant application twelve months out of the year in the same line of work without any cessation tends to mental fatigue, biased judgment and intolerable disposition. A complete change from any line of work or thought to attractions that appeal to the social nature of an individual is productive of renewed energy, new thoughts and better judgment in his chosen occupation. A recreation for mind and body is important to a physician's life the same as in any other vocation. Some one has rightly said that an individual never comes out of a cold plunge with the same thoughts that he had when he went in. This is an axiom in the vacation problem. Now that business is dull, arrange with your neighbor to take care of your work while you are away, and in return for which you will relieve him that he may likewise be free for some weeks during the summer months. You will both be refreshed and bring to your clientele bodily vigor and keener thoughts.

EDITORIAL CORRESPONDENCE.

T. S. S., "POTSDAM," June 27, 1908.

To the Editor:—My first stopping place, after leaving Springfield for a summer trip to Europe, was Columbus, Ohio, where a visit over Sunday was made with my old college mate, Hon. L. B. Kauffman, formerly Commissioner of Public Works of that city. During his term of office Mr. Kauffman inaugurated the plan for adequate water supply and has always retained an interest in the matter. We visited the dam of the Scioto River, where storage of two billion gallons of water has been secured, and a much greater storage can be obtained by raising the dam 20 feet. This water is to be cleansed and softened before passing into the service pipes. All the sewage of the city is passed through septic tanks and sand filters before it is discharged into the river below the city. Columbus is, therefore, doing its full duty to its own citizens and its neighbors by protecting the health of both. It differs from some cities in Illinois in this respect. The cost of this undertaking will be \$6,000,000, which, for a city of 200,000, is no inconsiderable sum. Columbus is the home of Peruna, and we are gratified to learn the report

that the crusade against proprietaries is said to have had the effect of largely reducing the sale of this one. The traffic in all these preparations has fallen off, we are told, nearly 50 per cent. A continuation of the crusade will result in putting them almost entirely out of business.

New York was next visited, and while there doleful tales of distress among young practitioners of medicine were heard. Uncomplimentary remarks were also heard regarding the methods pursued by several large schools in the metropolis. It seems high time for diminution of the number of graduates and more stringent supervision of medical schools. The future medical center of America is certain to be that city which is located in a state absolutely requiring high standards of admission, teaching and graduation. We must also begin a campaign among practitioners to induce them to recommend to future medical students only those schools giving an actual medical education. Too many men make a great outcry about the overcrowding of the profession and immediately proceed to send their students to the cheapest and most inferior schools.

Our ship was boarded at Hoboken Tuesday evening, June 16, and early Wednesday morning we were on our way for a pleasant sea voyage. Dr. Bowcock has proven a willing contributor to the treasures of the deep, but, since he has become accustomed to the motion, is enjoying himself. One of our fellow passengers is Dr. C. L. Ill, of Newark, N. J., who has informed me of a treatment for puerperal sepsis which appears reasonable and should be widely known. It seems the treatment is adapted to all cases of sepsis that have not passed beyond the uterus. Curettement is absolutely contraindicated. If necessary the uterus is irrigated with a mild bichlorid solution in gentlest possible manner and with low pressure. A stomach tube is then inserted to the fundus, and around this iodoform gauze is carefully packed to the full capacity of the uterus without compressing the tube. The vagina is also carefully packed with iodoform gauze, and the long end of the tube, wrapped in a sterile towel, is laid on the abdomen. When the packing is completed and every two hours thereafter, two ounces of a 10 per cent. solution of alcohol in sterile water is poured into the tube. The alcohol is antiseptic and the gauze acts as a drain. The tube and gauze are left in place three days. It may be necessary to insert a second packing of gauze. Dr. Ill reports that the results of this treatment have been very gratifying, and we hope it will be tried by our readers and reports made as to results.

In conclusion, I may say that we expect to spend three weeks in Heidelberg and may there find material for another letter.

Yours fraternally,

GEORGE N. KREIDER.

ABSTRACT OF THE PROCEEDINGS OF THE FIFTY-NINTH
ANNUAL SESSION OF THE AMERICAN MEDICAL
ASSOCIATION.

The fifty-ninth annual session of the American Medical Association was held in Chicago June 2 to 5. For the first time since the St. Paul meeting, in 1901, the association met in the center of the country. To

this fact, as well as to the greatly increased membership in the last few years, is due the large attendance. The registration office opened at 8:30 on Monday morning, and it was apparent almost from the start that all previous records of attendance would be broken. In the four days of the session 6,447 members were registered. Including those Chicago members who did not register, there were at least 500 in attendance whose names do not appear on the registration list. The actual attendance would not fall far short of 7,000. Adding at least 10,000 guests, exhibitors, etc., makes the actual number of persons in attendance about 17,000. The weather was of that well-nigh perfect brand that Chicago can exhibit at times, being bright and clear, yet pleasantly cool and braeing. The general headquarters and registration offices were located in the First Regiment Armory, at Sixteenth Street and Michigan Avenue, where were also found the sections on stomatology and pathology and physiology, as well as the House of Delegates, commercial exhibit, scientific exhibit, etc. This building, one of the finest National Guard armories in the country, served admirably for convention purposes. The meeting places for the other ten sections were the First and Second Presbyterian churches, Sinai Temple, the Calumet Club and Grace Church parish-house, all within a few blocks of the general headquarters, and the Orchestra Hall in the downtown district, in which the Section on Surgery and Anatomy met. This hall, one of the handsomest auditoriums in the city, seats 2,500, and was supposed to be ample for the meetings of this section, yet it was on several occasions inadequate, being crowded to the doors.

The House of Delegates was called to order on Monday morning at 10 o'clock by the president, Dr. Joseph D. Bryant, of New York, who, in his presidential address, commended the work of the Council on Pharmacy and Chemistry, as well as that done by Dr. McCormack in educating the public. He also recommended that a standing committee be established to elaborate the ethical principles underlying the practice of medicine, and that general instruction in ethical medicine be made a part of the undergraduate course. He dwelt particularly on the efforts now being made to restrict animal experimentation and recommended action by the House of Delegates on this subject. Dr. Bryant also called attention to the invitation extended by President Roosevelt to him as president of the American Medical Association to take part in the conference recently held at Washington on the conservation of natural resources.

The report of the General Secretary showed that the membership of the association on May 1, 1908, was 31,343, a net gain for the past year of 3,828. The reports received from state associations regarding the organization of branch associations showed that two states had voted in favor of their establishment, seven had voted against, and the remainder had at the time of the publication of the report taken no action. The appointment of a committee to consider uniform provisions for the regulation of county, state and American Medical Association membership was recommended. A communication was presented from the

secretary of the American Association for the Advancement of Science asking that the American Medical Association appoint representatives to the council of that body.

The report of the Board of Trustees included the customary report from the auditing company, showing that the entire business for the fiscal year of 1907 was \$385,030.89; that the total expenditures of the year had amounted to \$356,222.21, leaving a net revenue for the year of \$28,808.68. Detailed statements of all the various accounts of the association's business were given, showing the items in each case. The report showed that, during 1907, 2,715,293 copies of *The Journal* had been issued, forming a weekly average of 52,217, an increase of 12½ per cent. over 1906.

The Committee on Medical Legislation reported that the army medical reorganization bill and the Carroll-Lazear pension bills had become laws during the last session of congress. The importance of uniform and adequate state legislation on the practice of medicine and the preservation of public health was emphasized, as well as the necessity of careful study of the problems involved. The committee recommended that, pending the completion of the work now being done, only those changes in existing laws which are imperatively needed should be attempted by state associations. The formulation of the vital statistics bill, endorsed by the United States Census Department, the American Public Health Association, the Conference on Uniform State Laws of the American Bar Association, and the American Statistical Association, was reported and the endorsement of the House of Delegates was asked for this measure. The report of the Chicago Conference on Medical Legislation was also given.

The Council on Medical Education reported that the work of the council during the past year had been along the following lines:

1. The inspection and classification of medical colleges as (a) acceptable, (b) doubtful and (c) unsatisfactory.

2. The conducting of an annual conference with representatives of state examining boards and leading educators for the discussion of the important problems of medical education and medical licensure.

3. The collection and compilation of data regarding (a) medical college students and graduates and (b) regarding results of state license examinations.

4. A thorough investigation of preliminary and medical education in Europe.

5. Working for the advancement of the requirement of preliminary education in the United States to include a year's work in physics, chemistry, biology and modern languages.

6. Obtaining accurate information regarding high schools and universities in their relation to medical education.

The Board of Public Instruction reported that it had secured a secretary, Dr. R. Max Goepf, of Philadelphia, and that it was considering the establishment of lecture systems and of state boards of public

instruction and intended to publish articles in the magazines and public press for the enlightenment of the public on disease.

The Committee on Ophthalmia Neonatorum advised the enactment of laws in each state regarding the registration of births and placing the control of midwives in the hands of the boards of health; that health boards distribute circulars to midwives and mothers on the dangers and prophylaxis of this disease; that state and local boards of health prepare and distribute proper prophylactic solutions with specific directions for their use; that proper records be maintained in all hospitals in which children are born; that periodic reports be made by all physicians to boards of health; that concerted effort be made along the lines of public education throughout the country. This report was approved by the chairmen of the Sections on Ophthalmology, Obstetrics and Diseases of Women and Hygiene and Sanitary Science.

The Committee on Scientific Research recommended the appropriation of \$200 for the assistance of each of the following:

Drs. D. J. McCarthy and M. K. Myers, Philadelphia, "An Experimental Study of Cerebral Thrombosis."

Dr. Karl Voegtlin, Baltimore, "Chemistry of the Parathyroid Glands."

Dr. Isabel Herb, Chicago, "A Study of the Etiology of Mumps."

Drs. R. M. Pearce, Albany, N. Y., H. C. Jackson and A. W. Elting, "A Study of the Elimination of Inorganic Salts in a Case of Chronic Universal Edema of Unknown Etiology with Apparent Recovery."

Dr. H. T. Ricketts, Chicago, "An Investigation of the Identity of the Rocky Mountain Fever of Idaho with That Found in Western Montana."

On Tuesday afternoon, at the third meeting of the House, the reports of the reference committees were taken up, the Reference Committee on Medical Education approving the work of the Council on Medical Education and recommending that it be continued. The Reference Committee on Reports of Officers recommended the appointment of a committee of five to consider the elaboration of the Principles of Ethics. Resolutions condemning the legislative efforts to restrict animal experimentation were presented. The action of the Board of Trustees in preparing the second edition of the Directory was approved. The Reference Committee on Legislation and Political Action recommended the approval of the model law for vital statistics, which recommendation was adopted. The resolution presented by Dr. A. T. McCormack, of Kentucky, requesting all state associations publishing or controlling medical journals to restrict advertisements to such preparations as were approved by the Council on Pharmacy and Chemistry was adopted. A committee of three to confer with a like committee from the American Pharmaceutical Association in regard to drug reforms was authorized. The candidacy of Dr. C. A. L. Reed, of Cincinnati, for the United States Senate was endorsed.

On Thursday afternoon the annual election took place, with the following results: President, Dr. William C. Gorgas, Ancon, Panama;

first vice-president, Dr. Thomas Jefferson Murray, Butte, Mont.; second vice-president, Dr. John A. Hatchett, El Reno, Okla.; third vice-president, Dr. Thomas A. Woodruff, Chicago, Ill.; fourth vice-president, Dr. E. N. Hall, Woodburn, Ky.; general secretary, Dr. George H. Simmons, Chicago, Ill. (re-elected); treasurer, Dr. Frank Billings, Chicago, Ill. (re-elected); trustees to serve until 1911, Dr. Wisner R. Townsend, New York; Dr. Philip Mills Jones, San Francisco; Dr. William T. Sarles, Sparta, Wis.

The following nominations were made by the President and confirmed by the House of Delegates: Committee on Medical Legislation, Dr. Charles Harrington, Boston, Mass., to serve until 1911; Council on Medical Education, Dr. Victor C. Vaughan, Ann Arbor, Mich., to serve until 1913; Committee on Transportation and Place of Session, Dr. M. L. Harris, Chicago, chairman, for three years.

The following were elected honorary members: Dr. Edward F. Schaefer, Edinburgh, Scotland; Dr. August Martin, Griefswald, Germany; Dr. E. Treacher Collins, London, England.

The Committee on Awards reported the following awards in accordance with the report of the Committee on Scientific Exhibit: Dr. H. T. Ricketts, gold medal for research exhibit on tick fever; Dr. Fenton B. Turck, diploma for exhibit illustrating pathology of peptic ulcer; Northwestern University Medical Department, diploma for teaching exhibit, illustrating morbid anatomy; Rush Medical College, diploma for teaching exhibit, illustrating morbid anatomy; Dr. Charles H. Beard, diploma for exhibit of drawings of the human eyeground; Dr. Maximilian Herzog, diploma for exhibit, illustrating early human embryology; St. Mary's Hospital, Rochester, Minn., diploma for clinical and pathologic exhibit of stereoscopic photographs; Dr. Edmond Souchon, diploma for improved method for the preservation and exhibition of anatomic specimens; Dr. A. M. Stober, Cook County Hospital, diploma for exhibit, illustrating blastomycosis; Dr. Mallory and Dr. Wolbach (Harvard), diploma for exhibit of drawings and photomicrographs, illustrating the classification of tumors; U. S. Public Health and Marine-Hospital Service, honorable mention for exhibit, illustrating the investigations of Dr. C. W. Stiles on bookworm; Iowa State University, honorable mention for instructive tuberculosis exhibit; Cincinnati Hospital, honorable mention for creditable group of specimens; Philadelphia Polyclinic, honorable mention for creditable exhibit of group of teaching specimens; Lying-in Hospital of New York, honorable mention for creditable exhibit.

The Committee on Transportation and Place of Session recommended Atlantic City as the next meeting place, which choice was agreed to by the House of Delegates. The Reference Committee on Legislation and Political Action reported, requesting the Committee on Medical Legislation to arrange for a conference with the Committee of One Hundred, the Surgeons-General of the Army, Navy and Public Health and Marine-Hospital Services with a view to securing cooperation on the

establishment of a National Department of Health. After the transaction of some routine business the House adjourned.

One hundred and thirty-four members of the House were present out of a total membership of 142. The meetings of the House were better attended than at any time since its organization. The business was dispatched with accuracy and rapidity, the most notable tendency being the reference of resolutions, communications, etc., to the appropriate reference committees without discussion, reserving the consideration of the questions involved until the reference committee had considered the matter and submitted a report.

The social events of the week were particularly attractive. On Monday night the secretaries of the state associations and the editors of the state journals met at dinner and completed the organization of a state secretaries and editors association. A dinner to foreign guests as well as a number of other social events also occurred on Monday evening. On Tuesday evening twenty-seven alumni dinners were held in the various hotels and restaurants throughout the city, the largest being that of Northwestern University Medical School held at the Illinois Athletic Club, at which over 800 alumni were present. On Wednesday evening the president's reception and ball was held at the Coliseum, thousands of members and guests being present. On Thursday evening the local profession tendered the members of the association a smoker at the Coliseum, at which the attendance amounted to about 8,000. Numerous social attractions were provided during the day for the ladies and guests, including receptions at the South Shore Country Club, Chicago Women's Club, etc. The sections were all largely attended and the programs were of a high order. The session was in every way the most noteworthy of any which has yet been held, and it is anticipated that some years will elapse before the record established will be surpassed.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The Adams County Medical Society had their regular meeting, June 8, in the Elks club rooms, President J. B. Shawgo calling the society to order at 11 a. m. Others present were Drs. Robbins, W. W. and J. G. Williams, Ball, Knox, Center, Haxel, Harrison, Koch, Christie, Jr., Nickerson, Rice, Grimes, K. Shawgo, Shepherd, Pitman, Montgomery, Zimmermann, Blickhan, Spence, Gabriel, German, Lierle, Knapp, Thompson, Groves, Whipple, and Wells. The secretary was instructed to mail a copy of the new constitution and by-laws, together with a copy of "The Principles of Ethics," to each member. Dr. L. H. A. Nickerson made an interesting report of the state meeting at Peoria. The physicians of Quiney and Adams county were delighted over securing the next meeting of the state society. Acting upon the suggestion of State Secretary Weis, the following gentlemen were elected as the committee of arrangements for the next state meeting: Drs. J. H. Rice, R. J. Christie, Jr., L. H. A. Nickerson, C. A. Wells, Kirk Shawgo, Joseph Robbins and T. B. Knox. Plans are maturing for the big annual outing, probably an excursion, of the physicians of this part of the state next August. The committee chosen for the purpose reported resolutions of sympathy for Dr. L. B. Ashton on the death of his mother. The application of Dr. G. L. Thompson, of Kellerville, was read and referred to the censors, and upon a favorable report from them Dr. J. B. Ross of La Prairie and Dr. Jos. H. Bloomer of Quiney, were elected to membership. The secretary was directed to send a statement to the *State Journal* disclaiming any participation of the profession of Quiney in the flamboyant advertising which was indulged in by the Quiney Elks at the National Hotel at Peoria in their efforts to secure the convention of Elks for this city. The society had luncheon at Hotel Newcomb, after which Dr. J. M. Grimes of Camp Point, one of our honored and active members, read an interesting paper on "The Reminiscences of Fifty Years' Practice." Dr. Melinda C. K. Germann, Quiney, gave an able paper on "Diphtheria-Antitoxin," both papers being quite generally discussed.

C. A. WELLS, Secretary.

THE PRACTICE OF MEDICINE FIFTY YEARS AGO IN ADAMS COUNTY.

J. M. GRIMES, M.D., CAMP POINT.

The practice of medicine fifty years ago in this county was a very different proposition from what it is to-day. The doctor then did not visit his patient in an automobile, nor even in a top buggy, but astride his faithful horse he made his rounds. With better roads and comfortable vehicles much of the old-time hardship and exposure to storms and hot sun has been taken off the doctor's life. The study of medicine then and now has changed. Then the young man went into a preceptor's office where he read and studied anatomy, materia medica and therapeutics for one or two years. He also prepared the tinctures, made the pills, mixed and finely powdered the "Dovers," and in short, made ready from the crude drugs the medicines for use. This was a school in which he learned much that prepared him to take advantage of his college teaching. Judging from reports I read in medical journals, therapeutics is sadly neglected in the schools to-day, perhaps because the pharmaceutical houses are sending out ready-prepared remedies by the hundred to cure every known disease. The use of these saves the prescriber an amount of labor and relieves the busy practitioner of much study, but it would be better to know just what we are giving our patients. Right here I would refer the young men to the U. S. Dispensatory for daily reading, for there you will find the medical properties and use of all chemicals and plants used in medicine and the arts. Then there were not so many remedies in that day, nor were they so elegantly prepared. No capsules for quinin, nor chocolate-coated tablets, nor elegant elixirs. The antikamnia nor "Denver Mud" fellows were not known.

Each doctor mixed his own prescription and did not have them separately prepared and handed to him by a gentle traveling man, with enough advertising blown in the bottle to enable the patient to procure the next bottle without consulting his advisor.

Specialists were not so plentiful then. The day of specialism had not arrived. The family doctor looked after their ills, but the Lord cares for him now as the good old family doctor is no longer one of us. No matter what the trouble, a specialist must be consulted. The general practitioner can not be depended upon except for minor ailments or rough, hard drives. Then no trained nurses, for the friends and neighbors cared for the sick. Trained nurses are surely a blessing to the sick to-day, for the care of the sick is more than half the treatment in many cases. What a relief to know that your patient will be properly cared for and your directions carried out.

The medical journal was not then a trade journal, used more for the benefit of the proprietary medicines than for the doctor who pays his subscription expecting to receive something in return. The doctor then did not daily receive reprints advertising some mixture whose combination and manner of preparation were unknown, but warning you against worthless substitutes and imitations. Medicine in all branches has made great advances in fifty years, but probably more in etiology and diagnosis than along any other line. Malaria was then the all inclusive diagnosis; now the germs are responsible for everything except what the mosquito does. Possibly the microbe and mosquito are overworked as malaria once was. Anyway the profession is certainly coming better to understand disease and its cause, and is much better prepared to treat and control disease now than then. The advance in diagnosis, improved instruments of precision as stethoscopes, clinical thermometers, the *x*-ray, etc., mark the advance of our better and more correct diagnoses, and without a correct diagnosis we are at sea with our treatment. But with all our advances we have not cut down the mortality except in the matter of contagious diseases, which is much indeed. In erysipelas the old tincture of iron and iodine treatment of fifty years ago are now used, I am told. But the amelioration of disease and its cure are the great objects of our profession, and to successfully combat the enemy we must know the cause and the remedies best calculated to control and remove them.

As I look back it seems to me that the doctors of those days never thought of the money at the end of the case, but benevolence and the opportunity to aid their fellows was the motive which prompted to their best efforts. As a result the doctors died as they commenced, poor. As I look back over the years and their hard work and care, I feel that perhaps I have done more good than harm and have enjoyed myself with plenty to eat and wear. There were giants in those days who filled the journals with well written, logical articles. We had successful practitioners then in Quincy and in Adams county who left their impress upon the communities in which they lived. To the young man, let me say, do your work well and never neglect the call of duty for pleasure; attend to the minor details of your cases and let your patients see that you are interested in them and you will be appreciated. If the patient be rich, attend him for the money; if poor, for the duty you owe him and yourself. Each case will bring you others. Stay with them to the last and don't quit.

The old-time doctor with his calomel, quinin and opium, the art and practice of bleeding, accomplished much and is to be congratulated upon the many victories snatched from defeat. He was an all-round medical man because he had to rely upon himself and his own resources. To him the medical profession owes a debt of gratitude for the substantial foundation upon which the art and science of medicine rests to-day.

CLAY COUNTY.

The Clay County Medical Society held their regular annual meeting at the courthouse in Louisville, Tuesday, June 16, 1908, at 2 p. m. The president, Dr. George M. Steely, called the meeting to order. There were present: Drs. Gilson,

Dillman, McKnight, George W. Steely, Pridmore, B. F. Steely, Fairchild, Walton, Beckley and Duncan. Dr. W. F. Fairchild read a paper on extra-uterine pregnancy, with report of a case successfully operated on. Dr. Fairchild also exhibited the ovary and tube. Dr. B. F. Steely, Louisville, gave in a paper his "Experience with Pneumonia During the Past Winter." Both papers were interesting and instructive and were discussed by the members present. The election of officers resulted as follows: President, Dr. C. E. Duncan, Flora; vice-president, Dr. J. V. Dillman, Ingraham; secretary, Dr. J. W. Walton, Clay City; treasurer, Dr. G. C. Pridmore, Clay City. The next meeting will be held at Clay City September 1.

C. E. DUNCAN, Secretary.

COLES COUNTY.

The Coles County Medical Society met June 26, 1908, in Charleston, Ill. Dr. J. W. Pettit was the guest of honor and delivered a paper before the society in the afternoon, and in the evening addressed a public gathering of some 1,500 people on the general subject of tuberculosis. Dr. Pettit's remarks were most enthusiastically received.

R. H. CRAIG, Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, April 29, 1908.

A regular meeting was held April 29, 1908, with Dr. Robert T. Gillmore in the chair. Drs. Geo. F. Suker and Paul Gronnerud presented jointly a specimen of metastatic sarcoma beginning in the eye, and reported the case. The case was discussed by Drs. Buford, Pennington, and Reichmann, and in closing by Dr. Suker. Dr. H. Manning Fish read a paper entitled "Nasal Accessory Sinus Disease as an Etiological Factor of Pulmonary and Cardiac Symptoms," which was discussed by Drs. Geo. W. Webster, J. L. Miller, Robert B. Preble, D'Orsay Hecht, J. R. Pennington, Henry Gradle, Geo. F. Suker, J. Holinger, and the discussion closed by Dr. Fish. Dr. C. C. Rogers read a paper entitled "Unusual Localization of Appendiceal Abscesses," which was discussed by Drs. Edward H. Ochsner, Albert Goldspohn, and in closing, by the essayist.

SPECIMEN OF METASTATIC HEPATIC SARCOMA BEGINNING IN THE EYE.

GEO. F. SUKER, M.D., AND PAUL GRONNERUD, M.D.

Dr. Geo. F. Suker:—The specimen I have to present this evening is rather unusual, insofar that the primary sarcoma started in the iris of the right eye. The specimen was taken from a woman, 31 years of age, but the disease began six years ago. She is the mother of five healthy children, and the first appearance of any sarcoma was noticed when she was carrying her first child early in 1901 at which time a small nodule was recognized in the iris as being sarcoma by Dr. Harper, who at that time did an iridectomy. This gave her relief for a year or two. With a subsequent pregnancy (the second) she again developed a local recurrence in the right iris, and a second iridectomy was done. This likewise kept the eye quiet, or apparently so; and, in 1904 she became pregnant (third) again, and at that time another recurrence took place, for which the eye itself was enucleated by Dr. Bonine, of Niles, Mich. She remained perfectly quiet as far as any metastasis was concerned and free from local recurrence until 1906, when she became pregnant once more (fourth). She now developed local recurrences in the cellular tissue of the orbital content, for which x-rays were advocated, but proved of no avail. A local surgeon in Michigan removed growths from the orbit which were not larger than a pinhead to that of a small pea. No recurrence in the orbit took place until 1907. In the early spring of 1907 she again became pregnant (fifth) and at this time came under my care. The local recurrences in the early part of 1907 were very small. She was pregnant about four months. I wanted to do an extensive exenteration of the orbit, but did not feel like doing the

operation in the face of consultation which was to the contrary. I carried her through as best I could, upon a line of treatment empirical in a measure. Knowing the full import of the case, I was justified in being experimental in this measure, and for that purpose prescribed during pregnancy mulyptol, five minims, three times a day, and methylene blue three grains four times a day. This apparently lessened the size of the melanotic nodules in the orbit. She was delivered of a wholesome child—normal labor. The first urine passed by the child was blue, and on the first breathings the child emitted the odor of eucalyptus, so that we know that both passed through the circulation of mother and child. Soon after she began nursing the child the metastasis in the orbit took on a rapid growth in the socket and attained the size of a hen's egg. I was compelled to exenterate the orbit, which I did for the relief of the pain. This was in July, 1907. While she was under the influence of the anesthetic I made as careful an examination as possible, bimanual and otherwise, and determined for the *first time* that she had nodules in her liver along the presenting border. These nodules grew rapidly and we have the specimen here.

The exenteration of the orbit I did in a rather unusual manner, insofar that I attacked at the same time the accessory sinuses. That is to say, I cleared out the frontal, the maxillary, the sphenoid and the ethmoid sinuses by breaking through the orbital plates, also removed the periosteum on the frontal and malar bone and made as clean a sweep as I possibly could. Fortunately for her, the socket from now on showed no local recurrences. I had primary union and a clear orbit left.

The patient made a fairly good rally as far as we could determine, until December of 1907, when she presented herself again, complaining of considerable abdominal pain, the nodules in the liver having materially increased in size. She was taken in charge by Drs. Gronnerud and Pennington and was removed to the Polyclinic Hospital; an exploratory laparotomy incision was made, and it was then determined that the liver only was involved as suspected; although, at the time it was thought that sarcomatous nodules elsewhere might be found. This is the size of the liver (showed specimen). It has grown materially since July, 1907. It is a good sized liver—scarcely any normal liver tissue is to be seen. We have here the postmortem contents of the entire abdominal cavity, including the diaphragm.

In addition, it may be said that after the exploratory laparotomy incision, the woman recovered nicely and felt much better than before. She had less pain; her appetite and color improved for the time being; but five or six weeks after the operation these growths began increasing in size extremely rapidly. She did not live very much longer, and died about the middle of April, 1908.

A postmortem examination was made at once. I present the case with these few remarks to show the fallacy of at times doing an iridectomy for sarcoma of the iris when a patient still has some sight. The only radical line of treatment to be pursued in conditions of this kind is to make complete enucleation of the globe irrespective of the amount of vision. By the enucleation of the globe, I mean to infer not only the enucleation of the globe itself, but the removal of the entire capsule of Tenon as far as possible. This gives the patient the only possible chance of any longevity thereafter. We know full well that it makes very little difference so far as we can see these cases in a retrospective manner, irrespective of the size of the sarcomatous growths, whether they have broken through the globe or not, that recurrences are very liable to happen. In this case the hepatic metastasis ran a very rapid course, and as far as I know it is unique, insofar as this is as complete a history as could be obtained of a patient who had a sarcoma develop primarily in the eye, with subsequent metastatic manifestations thereof in the liver covering a period of about seven years. The rest of the organs at the autopsy proved to be perfectly clear or free from disease. At the autopsy I removed the left eye to see whether there was any sarcomatous involvement, but I have not found any as yet in the microscopical sections. The microscopic slides of the orbital growth show round celled melanotic sarcomatous tissue; and one peculiarity is that the sarcoma seems to have been encapsulated. That capsule, I take it, was from an involvement of the capsule of Tenon, which was not removed at the time of the enucleation, but which should have been.

Dr. Pennington, who was present at the postmortem, can add fuller details to the findings.

DISCUSSION ON THE CASE OF DR. SUKER AND DR. GRONNERUD.

Dr. Coleman G. Buford: It seems to me, as a surgeon, that a lesion so important as sarcoma should not be dealt with by any temporizing means. I agree with Dr. Suker that it was certainly an error to temporize in doing an iridectomy in this case, simply resecting the sarcoma which was in evidence in the iris. We know that wherever sarcoma appears, there is likely to be a recurrence, no matter how radically we deal with the disease, and in this instance, even though vision was not involved, the eye should have been removed.

I recall a number of cases of sarcoma of the superior maxillary which I saw when I was Dr. Fenger's assistant. It was his common practice, when there was any suspicion of the sarcoma involving the floor of the orbit, to not only resect the floor of the orbit, but all the fat therein, and to do an enucleation of the eyeball as well.

Dr. J. R. Pennington:—The weight of this specimen as it is now, I was told by a young man at the hospital who weighed it, including the intestines, kidneys, uterus, spleen, etc., is 25 pounds. That would make the specimen itself weigh probably 15 or 18 pounds. This is not as large as some of the specimens that have been removed. There are still specimens on record that have weighed 27, 28, and others 18 and 17 pounds. In this case the growth extended downwards, filling the thoracic, abdominal and pelvic cavities practically. You could put your hand in between the pelvic bone on the right side and the growth in contact. On the left side it was not quite so low, but on the right side it extended up and pushed the diaphragm up to the second intercostal space. On the opposite side the heart was pushed up under the clavicle; the lungs were pushed up as well. The woman was rather small, and this mass filled the entire cavity. The abdominal walls were tense from this growth, consequently, I do not see how a cavity could be filled much more completely than these three cavities were by this growth. The woman died undoubtedly from heart failure because the heart was so pushed up and pressed against that it was impossible to beat. The gall bladder was found resting on the fundus of the uterus. These growths usually occur where pigment is present, that is, in the uveal tract or in the skin or in black moles. When the growth occurs in the eye, then it more usually attacks the liver only. When the skin or moles are involved, then some of the other organs are liable to be implicated also.

Dr. Max Reichmann:—Dr. Suker mentioned the use of the Roentgen rays in cases of sarcoma. I have a case under treatment now, which was sent to me by Dr. Bohart four weeks ago. The patient is a woman, about 40 years of age, who has a tumor the size of a child's head at the upper third of the femur. She was sent to me for the purpose of having a radiogram taken, and the picture showed distinct features of a sarcoma, as it is shown on the Roentgen plate. Operative interference was out of the question, and Dr. Bohart asked me to try the Roentgen rays. According to the method of Rieder I put her under treatment with the full strength of Roentgen rays in the water cooling tube, treating her every day for fifteen minutes, filtering the rays so that the soft rays could not attack the skin by interposing a thick layer of leather. To-day this woman had the twenty-sixth treatment. The tumor has diminished about two inches in circumference, and she can move the leg in the joint which she could not do before.

There are several instances in the late literature on the subject where investigators have found that the Roentgen rays have a beneficial influence upon sarcoma, even if an operation can not help these patients any more.

Dr. Suker (closing the discussion):—I have nothing further to add other than to emphasize the fact that the best advice any of us can give our patients who have sarcoma of the iris, which is often associated with good useful vision, is that an enucleation be done. I have seen cases of iris sarcoma where patients have had 20/20 vision, and some others considerably less, but my advice has always been

to make a complete enucleation and sacrifice the cosmetic effect, exenterate the orbit at the beginning, doing as radical an operation as possible, unmindful of the visual acuity. And a radical enucleation to my mind consists in opening up the sinuses as well, so as to convert the orbit and sinuses into one large space; remove all the periosteum you can, being radical in the true sense of the term. In following these cases up we know that they have the best chance by so doing. Those who have had only an iridectomy done have succumbed sooner or later.

A year or two ago Drs. Casey Wood and Brown Pusey (*Arch. of Ophthalm.*, '02) tabulated the histories of cases of primary sarcoma of the iris which they had gathered from the literature. They collected forty-nine cases. This case was not included in the list. They came likewise to the conclusion that a complete enucleation should be done soon as sarcoma of the iris has been diagnosed. I grant you that an iridectomy is justifiable for microscopic purposes to aid the diagnosis. But as soon as you have made the diagnosis, follow up the iridectomy then and there with a complete enucleation. If orbital tissue is involved exenterate orbit and sinuses.

Dr. H. Manning Fish read a paper on Nasal Accessory Sinus Disease as an Etiological Factor in Pulmonary and Cardiac Symptoms.

DISCUSSION.

Dr. George W. Webster:—If I understand the essayist aright, he maintains the following propositions: The death rate from pneumonia is on the increase; there are more deaths from pneumonia than from tuberculosis; heart disease is on the increase, and finally, that sinus disease may be justly credited with being a most important etiological factor in these diseases and in their increasing prevalence and mortality, and that local treatment of the sinuses will lessen the prevalence and mortality in the latter by cutting short the disease.

Let us look at the census reports of the mortality from these diseases; but, before doing so, a few words of explanation may not be amiss. First of all, the author makes no statement as to whether the reported increase in mortality applies to the whole world or only to the United States, or only to the registration area of the latter. Let us see if the statements are true as far as the United States is concerned.

The present system, the international system of classification of causes of deaths, was adopted by the United States Census Bureau and the Department of Labor in 1900, and is in use by twenty-six of the leading countries of the world, by the registration states, and by all the leading cities of the United States, outside the registration states, with the exception of Chicago, which has a system of her own. Previous to this time mortality statistics were estimated and not based upon reports of deaths. The census year did not correspond to the calendar year. At the present time there are only ten states in the registration area: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, New Jersey, New York, Connecticut, Michigan, Indiana. It is thus apparent that correct authentic mortality statistics are available only since 1900, and then for only ten states in the union. These reports show that the average death rate from tuberculosis for the years 1900 to 1905 was 172.3 per 100,000 living, while for pneumonia the average rate for the same period was 134.9. The death rate for pneumonia for each year was as follows: 1901, 133.3; 1902, 124.5; 1903, 122.2; 1904, 135.7; 1905, 115.7. Average, 134.6—1900 to 1904. Thus we see that at least in the United States, in the only region, and during the only period during which we have authentic mortality rates based upon death certificates, the death rate from pneumonia is not nearly as high as from tuberculosis, and that the death rate from pneumonia during the five years from 1900 to 1905 inclusive, did not increase, but that there was a steady decline from 133.3 in 1900 to 115.7 in 1905, with the exception of 1904, when it rose slightly above the average for the five year period. During the above period there was an increase in the death rate from tuberculosis. This is the only conclusion of the essayist with which I agree.

It is rather embarrassing and exceedingly difficult to discuss this paper in-

telligently because of the terminology used by the author. For example, he uses as synonyms the terms "pneumonia," "inflammation of the lungs," and "pneumococemia," and says unqualifiedly, "The presence of pneumococci in the blood does not cause pneumonia," and again, "pneumonia is merely an accident or a symptom." Again he says, "The question is, can sinus disease cause pneumonia and heart disease?" If we are to accept the author's definition of pneumonia as an "accident" or "symptom," we must answer yes, as far as the pneumonia is concerned, for the infectious agent which causes sinus disease surely may cause "symptoms" and "accidents."

"Heart disease," "affections of the heart," "cardiac symptoms," "intense palpation," "fluttering of the heart," are too vague and indefinite and can not be rightfully regarded as disease of the heart as we understand that term. Again, he does not say what he means by the term, "sinus disease." The essayist makes certain unqualified statements that are utterly at variance with our notions of pathology and therapeutics and furnishes no proof, indeed no evidence that he is right and that the whole scientific world is wrong.

The author's fallacy consists in assuming something of which he furnishes not a particle of evidence, that the sinus disease precedes the pneumonia, that in the latter the pulmonary lesion is simply a congestion brought about reflexly through some mysterious action upon the sympathetic, and further assumes that treatment directed to the sinuses would do away with the pulmonary lesions, and the patient would be well. Another example of illogical, fallacious reasoning is found in the statement that "scarlet fever, measles and influenza are the leading causes of pneumonia and of sinus disease, this leading but to one conclusion, and that is if sinus disease is a cause of pneumonia it is a frequent cause." The sinuses may be infected by any micro-organisms that may reach them that are capable of producing an inflammation of the membrane lining them. Even though we admit that these sinuses are infected in pneumonia, it is as absurd to maintain that after general infection has taken place and the lung has become consolidated, to treat the sinus would at once clear up the lung, as to hold that it would have the same effect on a coincident pneumococcal arthritis or thrombophlebitis, or to maintain that because a diphtheritic infection entered the body by way of the tonsil that it could be suddenly terminated by removal or treatment of the tonsils, or that the tetanus could be stopped after it is well developed, by an amputation of the wounded foot through which the infection entered the economy.

Pneumonia is an acute, infectious, self limited disease due to the pneumococcus, and in which the lung manifestations are among the many manifestations of pneumococcal infection, the blood probably being invaded in probably every instance. This organism circulates freely in the blood and may cause local inflammatory reaction in almost any tissue or organ of the body and the nasal sinuses may be at times involved, but I know of no evidence even tending to show that pneumococcal sinus infection is present in a large proportion of cases and that the sinus infection precedes the general infection and the pulmonary involvement, and these facts must be demonstrated before the essayist can successfully maintain his thesis.

In 1889 Nothnagel put forward the view that there is a primary influenza pneumonia. Two years later the influenza bacillus was discovered, and Pfeiffer, Beck, Wasserman and others showed that in pure uncomplicated cases a pure culture of the influenza bacillus was found in the sputum; the pneumonia is a continuation of the same process from the bronchi into the pulmonary tissue and is quite independent of the ordinary croupous or lobar pneumonia. But secondary infection with the pneumococcus is probably common, giving rise to a true croupous pneumonia. Other forms of secondary infection may also occur.

For example: Nothnagel says that "very often" the catarrhal inflammation extends to the frontal sinus, the ethmoid or the antrum of Highmore. Weichselbaum regularly found either catarrhal or purulent inflammation of the nasal sinuses in this affection. Nothnagel says in one case he found typical influenza bacilli in the pus.

As to the reported case in which the patient is said to have been taken ill at

about midnight and in seven hours developed a temperature of 104, respirations 30 or 40, with rusty sputum, with a patch on the lung, and this then clearing up by treatment directed to the relief of the condition in the sinuses, I do not hesitate to say that I do not believe it is a case of pneumonia. I do not believe that any one is justified in making a diagnosis of pneumonia from any temperature, any pulse rate with the simple symptoms of congestion in the base of the lung, as reported in the paper, these same physical signs all disappearing within a few hours. The case, notwithstanding the fact that pneumococci were found in the sputum, was not one of pneumonia as we understand the term pneumonia. We know very well, and the doctor has well said, that pneumococci may be found in the respiratory passages, even in health. Again, pneumococci in the sputum do not constitute a pneumococcal infection.

Dr. J. L. Miller:—I only have a few words to say in regard to Dr. Fish's paper. First of all, the statement in regard to the prevalence of pneumonia and of heart trouble at the time of the influenza epidemics is something we must all recognize, but, as has been already said, there is a distinct pathological basis for this, and it is unnecessary to introduce a new theory. We have, for instance, in influenza a catarrh of the entire respiratory tract, in which the influenza bacillus plays an important rôle. That same influenza bacillus may invade the lung tissue and set up a pneumonia, or, as is frequently the case, prepare the soil for the ever present diplococcus of pneumonia.

Again, in the heart troubles which follow influenza, they are not in the nature of neuroses, but they have a distinct pathological basis, either a myocarditis or, as has been shown within the last year, in laboratory work, involvement of the coronary vessels as the result of toxemia with the influenza bacillus.

In regard to these cases of heart trouble which Dr. Fish refers to, and which he says were neuroses, all of them, I think, we can readily explain why these patients were cured by opening up the sinuses. The doctor is an enthusiast on the rôle played by the sinuses in a variety of conditions, and among them, heart troubles. We know that in the treatment of any neurosis, psychotherapy plays a very important rôle, and that the individual who can bring the strongest suggestion to bear on the patient is the one who cures most of these patients, and the doctor's enthusiasm—honest enthusiasm—in this respect has accounted for his success. I have no doubt that some of the patients could have been cured by christian science.

There is one thing of importance in the doctor's paper, leading us to think along certain lines. We know already the importance which the gall bladder plays as a breeding ground for the typhoid bacillus. Typhoid bacillus may be in the gall bladder for years and years and appear in the stools of these patients. It is not impossible that the sinuses may act in such a way as to be breeding grounds and may play a more important rôle than we have thought in the past in retaining infections with certain micro-organisms in the respiratory tract.

Dr. Robert B. Preble:—I do not feel I have anything to say about this matter except to remark that I myself am in part responsible for the change which Dr. Fish made in the title of his paper. The title of the paper as it appears in the program and the title as it appeared in the carbon copies of the paper which he supplied to the various gentlemen whose names appear on the program this evening to open the discussion are different. I suggested to him that he alter the title of his paper from the way it read. If I remember rightly, he spoke of sinus disease as a cause of pneumonia, and then it was changed to sinus disease as a causal factor in cardiac symptoms, etc. I suggested this change because it did not appear to me that he had furnished satisfactory evidence that these sinus diseases had actually anything to do with the causation of the diseases of the lungs or of pneumonia, as he stated in his original title, or of heart disease. I must confess, too, I was not particularly impressed by the case of pneumonia, although I am willing to accept that it was pneumonia, because pneumonia is a disease of great irregularity; that is, it is quite possible for pneumonia to run its course in a much briefer period than it does on the average, and I can not see that draining the sinuses had anything to do with the satisfactory course the

case took. I think just as Dr. Miller has suggested, that in some instances the infected sinus may furnish an infection atrium. It is a well-known fact that whenever bacteria lie in a cavity, and that cavity becomes, for some reason or other, closed, these bacteria undergo alteration in virulence; that an organism which formerly was quite innocuous becomes, after the closure of the cavity, a virulent organism, and I can imagine sometimes pneumococci lying quietly in a sinus or sinuses and causing no harm until for some reason the exits of these sinuses are closed. Then the organisms undergo a change, become virulent, and implant themselves upon the lungs, after having entered the blood, or in some other tissues of the body.

The observations of Dr. Fish are interesting, rather than of great importance. It is interesting to find that apparently as a result of sinus disease one can have various cardiac subjective symptoms, which are not demonstrably the result of any actual disease of the heart, just for so long we have known people who can have asthmatic attacks which doubtless cease after the removal of polypi from the nose. But I think it is right that we should use extreme caution in laying much stress upon observations of that sort, because the history of medicine is filled with instances of men going wrong from drawing too broad conclusions from isolated observations. They take themselves and their observations too seriously. We know how frequently the gynecologist has been led into all sorts of devious paths, and the proctologist in the same way. And so, too, the same may be said of the eye man. Possibly more conspicuous than any other specialist, he has discredited himself more or less by jumping at broad conclusions from limited observation, and so I would caution Dr. Fish and the other nose and throat men about laying too much stress upon these interesting observations that they make.

Dr. D'Orsay Hecht:—I feel somewhat in agreement with Dr. Preble's rather conservative tone relative to Dr. Fish's paper, and feel that from the neurologic side there are a few points that may require a little illumination. Dr. Fish has been enthusiastic in raising the sinuses to the dignity that is just a bit born of his enthusiasm rather than to real close research into all of the pathogeneses that can possibly arise from sinus disease. He has dealt with terms to-night that, in a measure, have raised just criticism from Dr. Miller, especially with reference to the comment that a cardiac murmur is not necessarily to be interpreted as one of cardiac neurosis or of a neurotic type. I think in many of these cases a myocarditis is to be thought of and may be concluded.

When Dr. Fish refers to a series of symptoms, such as vertigo, meningeal irritability, syncope and dyspnea, and tries to put them on a sound basis and brings them into direct causal relation with sinus disease, he has perhaps as much justification for that as we have for assuming that so many of these symptoms on the part of the nervous system are due to toxemia; that delirium is necessarily interpreted as a toxic delirium, and that dyspnea is an evidence of toxemia. On the other hand, we do not need to go further than one assertion or observation which Dr. Fish has made with regard to the pathogenesis of these symptoms in the nervous system. He goes much beyond the point where he is justified, and I should say that his conclusions are extravagant. What we know of the thoracic sympathetic nervous system is not founded on any definite knowledge at all, and when we seek to bring cardiac neuroses into direct causal relation with the thoracic sympathetic system, I think we are doing something that is without foundation in fact and without foundation in scientific knowledge.

One more point with reference to optic neuritis which occasionally follows sinus infection. I think as neurologists we are inclined to believe that optic neuritis is in many instances due to some pressure phenomenon, and with proper drainage of the sphenoidal sinus and drainage of the ethmoid, the optic neuritis subsides, for the reason that the pressure has been relieved. Let us take the sphenoidal fissure, this is so thin that it is not present to a sufficient extent to wall off any sort of accessory sinus infection, and for that reason we may get optic neuritis to a very great extent.

Dr. J. R. Pennington:—I want to thank the speaker before the last (Dr. Preble) for getting pneumonia and proctology associated. He intimated that the

gynecologist and the proctologist have been led into byways. Probably they have. I would like to ask whether or not the internist has ever been led off into by-paths; whether the internist is always correct in his diagnosis, and whether or not he always cures his patients. The proctologist is ever ready to compare notes with the internist, both as regards improvement in technic and in treatment of rectal diseases in the past five or ten years, and I think you will find our work will compare favorably with that of the internist.

Dr. Henry Gradle:—Dr. Fish's conclusions were presented to us so hurriedly and they covered so wide a scope that it is difficult to determine how much to accept. A few of his observations have been noted by others, for instance, the liability to involvement of the optic nerve in consequence of sinus infection, though it has not been demonstrated that this is a frequent occurrence. On the other hand, many of his conclusions seem to be based on cases following influenza. We know that influenza may cause sinus disease, but that it may also cause infection of other organs primarily. It is hence rather difficult to analyze such cases clinically, and detailed conclusions can not be satisfactorily drawn from them. My own observations on sinus disease do not in any way compare with those Dr. Fish has stated. But I do wish to call attention very forcibly to one subject which I think the internist has not sufficiently accepted, and that is, the importance of disease of the nasal passages as a cause of chronic bronchitis. That subject has not been fully recognized by the internist. Chronic bronchitis in young people is undoubtedly in the majority of instances dependent upon lesions of the upper air passages. I judge of the sequence of these events not simply from mere observations of cases. It is common enough to observe that a bronchitis is secondary apparently in its course to nasal affections. But I have, too, a fair number of records showing that a bronchitis that had lasted indefinitely ceased after clearing the nasal passages or curing a nasal suppuration sometimes located in the sinus, sometimes of a diffuse character. I would mention as a subject kindred to this the relation of adenoids to bronchitis. It was originally in the treatment of adenoids that my attention was called to the fact that a chronic bronchitis that had resisted other treatment is very often promptly influenced by removing an obstructive nasal lesion.

Dr. Geo. F. Suker:—I dare say we, as ophthalmologists, can show the internists a point or two in making diagnoses by the use of the ophthalmoscope. But to come more to the point under discussion. There is no question in my mind that sinus lesions do produce a good many of the optic inflammatory reactions. I am satisfied of that. While my experience has not been extensive, it has been sufficiently accurate in quite a few cases to put it on a rather sound basis. I think the paper of Dr. Fish has led some of us to draw false conclusions, or at least, hasty conclusions. I do not think the import of the paper has been properly taken as a whole. I do not think the doctor intends to convey the idea that pneumonia, as it is called, or inflammation of the lung, to put it more properly, is dependent on sinus lesions, but that there may be a relationship existing between the two in so far as the sinus being a space may be occupied by and contain pneumococci, staphylococci, and streptococci, and may act as some source for the direct invasion in getting the pneumococci where they belong properly to develop the pneumonia. In other words, they may aggravate the condition, and certainly if we can relieve the focus we can in a measure alleviate others in that sense. I do not wish to convey the idea at all that the etiology of pneumonia is to be found in the accessory sinuses of the nose, but that sinus diseases as a whole do present in many instances cranial complications. There is no question about that. Operative conditions of the sinuses will give us sometimes very marked cerebral disturbance, and we are prone to think that one is not justified in attacking these regions in a surgical manner. I can recall one instance quite definitely that happened in my own practice some years ago. In this case the trouble was not sphenoidal or ethmoidal, but it was located in the frontal sinus. There was pneumococcus infection, but how the patient got it I do not know. I did not operate under a general anesthetic. I went through by way of the nose, opened the sinns and drained it, and within a week or ten days thereafter he developed what a gen-

eral practitioner calls pneumonia. I do not want to say for a moment that the frontal sinusitis was the cause of the pneumonia. Far from it, but it did seem somewhat related in a way, and the patient was in the hospital with no case of pneumonia near him. He was perfectly healthy so far as we could determine by any physical examination prior to the nasal operation, and he developed what was called a pneumonia. This occurred some years ago, and I do not think our conception of pneumonia has changed very materially since then. But undoubtedly cardiac complications arise from involvement of the sinuses in some cases. In the sinuses we have pent-up lesions or conditions, and we have absorption, with a certain amount of toxemia, either general or local, and why should we not have some distant nerve or peripheral disturbances. That is the idea Dr. Fish wishes to convey, rather than a specific etiology existing between the accessory sinuses and cardiac complications. He believes that we have in the sinuses a cause and a condition from which absorption takes place, and whereby we have a nervous disturbance, so far as the heart is concerned, which may act as a focus for assisting under proper conditions in developing certain pulmonary complications.

Dr. J. Holinger:—It seems to me that sins were committed in both directions, in overrating as well as in underrating the influence of sinus diseases on the general condition of our patients. The specialist is often dazzled by the wonderful improvement in bronchitis, etc., when he succeeds in establishing nose breathing, which is a frequent concomitant of sinus diseases. However, I do not think that the present moment is at all favorable to a complete settlement of the questions of influence of diseases of the sinuses upon general health. The specialists are still in the midst of investigating the anatomy and pathology of these cavities and of their lining, and new methods are daily published for diagnosis and treatment of diseases of the accessory sinuses of the nose.

Suppose that all these questions be settled, even then the question of influence of diseases of the sinuses upon diseases of the lower respiratory tract and heart can not be answered from conditions in acute diseases, because in all points concerning etiology and diagnosis a simultaneous infection of the two parts can never be excluded, and therefore a dependence of one upon the other can not be shown. In points regarding the treatment we can not expect satisfactory answers because the treatment of the sinuses in acute diseases is often identical with establishing nose breathing.

The chronic diseases of the sinuses offer better chances for enlightenment. In a paper on general blood poisoning from diseases of the sinuses read before the M. V. M. A. in Indianapolis I mentioned a number of cases where the cure of chronic diseases of the sinus relieved affections of the lungs, heart, etc., that had existed for years and could not be influenced by internal medication and expensive treatments in watering-places or hydrotherapeutic institutions in this country and abroad. Suggestion and autosuggestion could be excluded because the results were often as great a surprise to the patient as to me. On the other hand we must not expect too much from the treatment of chronic diseases of the sinuses as is illustrated by what is called rhinitis caseosa. In such cases great masses of dried up pus micro-organisms and epithelia may be located for years in the maxillary and frontal sinuses without any other discomfort to the patient except their odor.

The subject under discussion is a very complex one. Real progress and lasting results can only be expected if the general practitioner works hand in hand with the specialist. The profession at large ought to show respectful appreciation for the work that has already been accomplished and give encouraging support to the specialist by referring to him cases that the general practitioner can not handle. For the specialist careful study of the literature, patient, and accurate observation and compilation of facts, considered with cool judgment, are essential.

Dr. Fish (closing the discussion):—I want to say a word or two with reference to those cases that had certain cardiac symptoms, palpitation, fluttering, etc. Those patients, with the exception of the last one, came to me on account of eye symptoms. They had asthenopia, a flushed eye, or an optic neuritis. I told them I thought I could cure them by treating the sinuses. I did not make any sug

gestions about any heart symptoms. Since they have been operated on they told me about the heart symptoms they had. I ascertained at the time they took chloroform that the heart was irregular; but I had the anesthetist examine the heart to see whether these patients could take chloroform or not. I did not go into and try to find out their symptoms; they told me about their cardiac and pulmonary symptoms afterwards. Hence the relief in these cases can not be attributed to psychotherapy or to christian science.

Dr. C. C. Rogers read a paper on Unusual Localization of Appendiceal Abscesses.

DISCUSSION.

Dr. Edward H. Ochsner:—The essayist starts out with the statement that the position of the appendix depends on the position of the cecum to which it is attached, and it may be in any portion of the abdomen, and he illustrates that with the embryologic charts very beautifully—how it happens that the appendix may be any portion of the abdomen, depending on the length of the cecum and the mesocecum. These are, of course, facts that have been known for a long time, but they are facts that can not be repeated too often because they are too often forgotten. I know because I have seen it and experienced it myself, that very often physicians and surgeons ask me, and ask others, about this, that an abscess in a certain portion of the body can not be an appendiceal abscess because the appendix can not come to that portion of the abdomen. That is absolutely fallacious. There is no portion of the abdomen where an appendiceal abscess can not develop, and it is in the rare cases we must remember that exceptions may exist. It would be unnecessary to add additional experience or additional statistics as to the possible location of an appendiceal abscess. The essayist has shown us a sufficient number to impress upon us that appendiceal abscesses can occur anywhere in the abdominal cavity, and if we will remember that fact, we will not make the error in claiming, when we see a practical individual case, that this can not be an appendiceal case because the abscess is located in a place where the appendix is not found normally.

There is one point which this paper should emphasize and teach us, namely, that in very many cases of abdominal surgery it is very much more important to make a surgical diagnosis than to make an exact anatomical diagnosis. I do not care very much whether an abscess in the lower portion of the pelvis is a pyosalpinx or whether it is an appendiceal abscess; I do not wait until I can make a diagnosis. That is a terrible fault, especially among the European diagnosticians of great ability and great worth. It is very much more important to make a surgical diagnosis than to make an exact anatomical diagnosis. I saw one of the best diagnosticians I ever knew wait to make a diagnosis until a gallstone ulcerated through the abdominal wall. He wanted a correct diagnosis, but it was made postmortem. He should have a correct working diagnosis, and whether a surgeon or physician is able to make a diagnosis between a pyosalpinx and an appendiceal abscess, both of which occur in the cul-de-sac, makes no difference so long as he institutes the right treatment for either. And let me repeat: In a great many instances it is better for the patient and better for the mortality records and morbidity records that in these unusual cases which do not follow the rule to make a correct working diagnosis than that we make a correct anatomico-pathologic diagnosis.

Dr. Albert Goldspohn:—This very interesting subject brings to my mind some cases of years gone by. About twelve years ago a girl, a virgin, whom Dr. Fenger and myself did not think was properly a subject for a vaginal examination, became sick with pelvic peritonitis, and it was clear that there was the formation of an exudate in the left inguinal region, with very much constitutional disturbance. Dr. Fenger saw this patient in consultation and advised exploratory puncture, which showed pus, and then I evacuated the abscess by aspiration and awaited developments. Strange to say, that girl became better beyond our expectations. She recovered fairly good health and married. About two years after her marriage (she did not bear children) she became sick with very pronounced pelvic trouble, bilateral apparently, from a genital source. I then did an abdominal

section, a very radical operation, and during this operation an appendix vermiformis structure, at least eight inches long, was found extending from the ordinary location of the cecum, first, to the fundus of the uterus, there adherent, and then over to the sigmoid which lay in its usual location, and there also adherent, with a number of evident perforations in its course, and there was no evidence that this whole pelvic trouble had come from anything but the appendix.

On two different patients later than that I performed vaginal drainage for pelvic abscess and subsequently I had occasion to do abdominal section for them, and the location of the appendix, together with the entire history of the case, made it sufficiently clear that the pelvic abscess previously drained was from the appendix, and not from a uterine source.

One other such case was drained without a subsequent laparotomy in which I, for my part, am also satisfied, it was from an appendiceal source. Again, a man, about two years ago, had been suffering for some months under the care of the family physician, some distance away, with a lumbar or perinephritic abscess, which pointed in the loin. An incision was made and pus let out. The man improved, but the discharge from the sinus continued. I got hold of him, and in opening the sinus came in the region of the kidney and found a fecal stone, an enterolith, closely located near the right kidney, with no evidence of any extrusion from that organ. Then, in making an incision over the appendix I found the appendix where it belongs, remarkably well looking, considering that it must have been the source of the abscess that had been evacuated months previously and of the stone that I found.

I refer to this to correct the impression, if any one should have it, in regard to Dr. Rogers' last remarks that the appendix must lie extraperitoneally if it shall cause an extraperitoneal abscess. This case shows that it may cause such an abscess when it lies intraperitoneally.

Dr. John A. Lyons:—In order to emphasize the point made by Dr. Ochsner, that it is better to make a working diagnosis than an exact anatomical one, I wish to call the attention of the members to the case of a man who was found on the public thoroughfare dying in this city about a week ago with general peritonitis, and who suffered a great deal of pain in the abdominal cavity, but which was not referred to the region of the cecum. On opening the abdomen it was discovered that this pain originated from and his death was due to an appendiceal abscess. That man suffered for months, but a correct diagnosis was not made because the pain was not specifically referred to the region of the cecum as we normally know its location to be. An exploratory incision was here indicated, would probably have prolonged his life or would at least have avoided the odium of a post-mortem diagnosis.

Dr. Rogers (closing the discussion):—In regard to the remarks of Dr. Ochsner about surgical diagnosis, I agree with him entirely that the diagnosis of appendicitis should be made before there is a gangrenous condition of the appendix and before an appendiceal abscess has formed, and the diagnosis can be made before we have a localized abscess and before we have a marked gangrene of the appendix. Once in a while in gangrenous appendicitis the microscope will not tell us the condition; but we find in a gangrenous appendicitis we have a leucopenia instead of a leucocytosis, but when we have a leucopenia we usually have a high polymuclear count. I have operated on a case with only 4,500 leucocytes where there was marked gangrene of the appendix and of the cecum.

Another point I want to impress is with reference to those cases that are brought to us complaining of abdominal pain associated with painful urination and painful defecation. I have a case in the hospital now I operated on about a week ago. The patient is a girl, and when brought to the hospital every time her bowels moved she would have great pain. A diagnosis of appendicitis was made, and in opening the abdomen a gangrenous appendix was found lying back of the uterus. Taking the symptoms and findings in connection with the uranalysis and blood-count a positive diagnosis can be made as to whether pus is present or not.

Regular Meeting, May 6, 1908.

A regular meeting was held May 6, 1908, with the President, Dr. Henry B. Favill, in the chair. Prof. J. Pfannenstiel,* of Kiel, Germany, read a paper, by invitation, entitled "Hebostectomy Compared with Other Procedures in the Management of Labor in Contracted Pelvis." This paper was discussed by Drs. Charles S. Bacon, Joseph B. De Lee, and the discussion closed by the essayist. Dr. Robert B. Preble read a paper entitled, "Clinical Differentiation of the Various Types of Aortic Insufficiency." The paper was discussed by Drs. Robert H. Babcock, Edward F. Wells, J. F. Hultgen, and the discussion closed by Dr. Preble. Dr. Frank S. Churchill read a paper entitled "The Treatment of Meningococcic Meningitis with the Flexner Serum; Report of Cases." The paper was discussed by Drs. Lackner, Wells, Stocking, Herzog, Hultgen, Keyes, and the discussion closed by the essayist.

DISCUSSION ON PAPER OF PROFESSOR PFANNENSTIEL.

Dr. Charles S. Bacon:—I think we had a very worthy presentation of this important subject from a representative of a German University and German clinic. Those of us who are engaged in this special work of obstetrics know that Professor Pfannenstiel has contributed very much not only to the literature, but also many original ideas to the problem of technic, both in gynecology and obstetrics, and the paper presented to-night is a very concise presentation of a most important subject.

I imagine that many of us may be somewhat surprised that this operation, which has been so rarely or so little done in this country, has attained such a place in Germany, so that in one clinic—not the largest—27 operations have been reported. Moreover, it will probably surprise some of us apparently that this operation has displaced symphysiotomy. Professor Pfannenstiel has not said anything about that operation, but his silence justifies the assumption that he thinks that hebostectomy has undoubtedly displaced symphysiotomy in the great majority of cases. It is very gratifying and will be very interesting to all of us to have the position of hebostectomy and high forceps so clearly stated, absolutely discarding high forceps in cases of small pelves where the child has not descended into the pelvis, and where there is no infection. Formerly, high forceps has been a popular operation with us, and as has been said, we have been enabled to rescue some children by it, but it has also been guilty of many injuries and the loss of many children, and it is certainly fortunate that we have this new operation, one which will displace that. The only discouraging thing to me in listening to this paper is the restriction of the operation to those cases in which there is no infection. I do not question the wisdom of that contra-indication, but it is discouraging because we have many cases of infection in these contracted pelves, where otherwise hebostectomy would be indicated, if infection had not occurred, and we can not help thinking that perforation of the head of the living child is still considered necessary. Whether the perfection of the technique in a clean case will make this operation, which does not open the peritoneum, possible in some cases of infection or not, we can not say, but I hope this may be shown in the future.

Many points were brought up in this concise paper, and I shall not take time to dwell on many or any of the others, but wish to say that I was very glad, indeed, personally that the author gave so much support to the induction of premature labor, an operation I believe that is of great advantage and is discarded by those operators who are careless in the management of their cases and careless in the management of the child after birth. This is a very old and valuable operation and must be made in the future as it has been in the past.

As regards what was said about the technic, I was very much interested in the method of operation, particularly with reference to making the incision below. As to the Doederlein operation, it has certainly led to hemorrhage in a number of cases, probably due to injury of the soft parts largely, and more or less danger attends its performance. We have had reported in this city

*For abstract of paper see p. 221.

injury to the bladder from the introduction of the needle from above, and if this technic will avoid that, it is certainly an improvement that should be adopted in the future.

Dr. Joseph B. De Lee:—I believe Dr. Pfannenstiel's paper, coming as it does as a voice from abroad, is very timely, especially as it points out the dangers of neglect of the study of individual cases of confinement, with a view of preventing the accidents due to a disproportion between the fetal head and the pelvis. I think in that view alone the paper deserves the greatest recognition. In cases of contracted pelvis, as handled by the majority of men, the obstruction is only recognized after a prolonged period of expulsive labor. Then the obstruction is noticed and the proper or improper means of delivery are instituted. In cases of contracted pelvis we have two courses of procedure. One is the prophylactic and the other is the curative. In the prophylactic we consider the induction of premature labor, when the woman consults the obstetrician in the early months of pregnancy, and a contraction of the pelvis is recognized. Second, prophylactic version early in labor, substituting a breech presentation for a head presentation, in the hope that the aftercoming head will pass through the contracted pelvis more easily than will the foregoing head. Third, Cesarean section early in labor, not after labor pains have been in progress for a long period of time, the patient possibly infected and certainly exhausted, and not in a good condition to withstand an abdominal delivery. Fourth, hebstectomy as a preparatory operation even before the bag of water has ruptured, or certainly before the cervix has completely dilated and expulsive pains have been in operation for a shorter or longer period of time. Which one of these methods one adopts will depend upon the degree of contracted pelvis and the accoucheur's power of estimating the resistance that is probable between the head and the pelvis. In spite of the nice figures which we are likely to use in estimating the *conjugata vera*, the estimation of mechanical disproportion will always be a personal matter. A physician will estimate the size of the child and estimate the size of the pelvis, juggle the two estimations in his mind, and say, "This head will probably or will probably not go through this given pelvis," and he will select the mode of procedure accordingly.

The secondary operations are high forceps, perforation, hebstectomy and Cesarean section. It was thought when hebstectomy was first proposed that it would offer a mode of relief in those cases of more or less neglected labor, where the only alternative was perforation of the living child, but later experience has shown that hebstectomy is successful in those cases only where Cesarean section would be successful, and that perhaps with a little less strict indication than in those cases where Cesarean section would be successful. This brings us back to the first proposition, that in order to get results from hebstectomy as well as from Cesarean section one must recognize the difficulty early, and use it probably as a prophylactic and not as a secondary operation. Hebstectomy is to be done, therefore, in those clean cases where labor has not progressed too far, where the condition of the mother is good, and where she is not infected, and where the child is in prime condition. Where previous attempts with forceps have been made, especially with the long forceps of Tarnier—the axis traction instrument—aided by powerful muscles at the other end, the condition of the child is not such as to warrant the performance of hebstectomy as a secondary operation. Although craniotomy is a revolting procedure, still there are some cases in which we will have to do this operation. In this way I would second most heartily the indications Professor Pfannenstiel has laid down, with the emphasis on the early recognition of contracted pelvis, and the performance of induced labor in the latter months of pregnancy, if the patient refuses hebstectomy or Cesarean section at term.

Professor Pfannenstiel (closing the discussion): With reference to symphysiotomy. I think it is displaced by pubiotomy or hebstectomy. Hebstectomy is very much like symphysiotomy, only it is done at another place and with better results, and so I thought it was unnecessary to speak about symphysiotomy in my paper. In former days I resorted to symphysiotomy in

some cases, but noticed that patients, after the performance of this operation, were confined to their beds for two and three months. That is a long time, in the opinion of the patients, and naturally they are disgusted with such an operation. Before doing any of these operations, I think it is very important to wait and see if the child's head will pass through. I teach this waiting to my students. We can not know beforehand. But we have a method of measuring the anteroposterior diameter which I can recommend very heartily. It is the method of Bylicki. We have used this method of measurement for three years, and I have found it very satisfactory, so that with it we can say definitely the diameter is so and so, and when we say that the measurement is not one millimeter more or one millimeter less, and then we have to learn by feeling the child through the abdominal wall. I believe that if you will resort to this method of measurement, you will find more contracted pelves than you have formerly thought. Of course, minor degrees of contracted pelves are very difficult to determine, but they can be worked out. We have to find out the relation between the pelvis of the mother and the head of the child. I do not perform prophylactic version very often, but this operation is attended with good results in cases of flat pelves. That has been my experience, and I am satisfied that the majority of modern operators do not like this method. They do not make a differentiation between a flat pelvis and a contracted one. The old physicians made this differentiation more clearly, and we have either forgotten it or neglected it.

A word or two about the infected cases. I am very sorry that we can not deal satisfactorily with those infected cases. The case to which I referred in my paper was among twenty-seven on which I operated. Although the patient had fever, I was encouraged by the good result I obtained.

Dr. R. B. Preble read a paper on Clinical Differentiation of the Various Types of Aortic Insufficiency.

DISCUSSION.

Dr. Robert H. Babcock:—It would be difficult to add anything to the paper just read, but it seems to me there are one or two points which can be amplified with advantage. The essayist has pointed out that the danger in the arterial type of this disease are due largely to the fact that the valvular changes are progressive, that also there are vascular changes which modify the effect upon the heart, and that the heart muscle suffers from coronary sclerosis. That is true. But there is another fact which may be dwelt on. The recent experiments on dogs, published by H. A. Stewart, prove that the effects of aortic insufficiency upon the wall of the left ventricle are due not to the regurgitation as such, since the amount of blood which regurgitates is small and can be practically neglected, but to the fact that the leak has transferred the pressure from the aorta to the ventricle and thereby increases the ventricular tonus. So long as the heart muscle is sound, its tonus is increased and can be maintained. This is eminently true of the bacterial or endocardial type of disease, and this accounts for the fact that we discover in these cases such enormous hypertrophy on the part of the left ventricle, and that the life of the individual is maintained for so long a time. When, however, the heart muscle has become degenerated as the result of a general vascular decay, the ventricular tonus can not be maintained, and the result is that the ventricle readily yields to the pressure to which it is subjected.

Another point which influences the prognosis also is the fact that an aortic insufficiency produces, according to Stewart, a reflex inhibition of the vasomotor centers, with consequent dilatation of the arterioles. This leads to a great fall in systolic blood pressure, which fall in blood pressure is not diastolic, as we have supposed, and due to the amount of blood regurgitating into the ventricle, but really systolic and due to the outflow into the capillaries. Just so long as this outflow into the capillaries is promoted by vasomotor dilatation, the ventricle is in a certain sense relieved. In these cases we get the most marked Corrigan pulse. When the arterioles do not empty themselves suddenly

and readily during systole, there is peripheral resistance, and this still further intensifies the effect upon the left ventricle.

In the purely endocardial type, arterial degeneration has not taken place; the vessels respond readily and there is an easy outflow into the capillaries, with partial relief to the ventricle. In the sclerotic type of the disease, on the contrary, the arteries do not respond in the same manner or to the same extent at all events, and we frequently find in these cases that the collapsing pulse is not so well marked. The vascular signs are not so pronounced as Dr. Preble has stated, and this is one of the great reasons why, in this type of disease, the ventricle suffers still more than in the other type. This has a bearing upon treatment, because when the outflow into the capillaries is not easy, vaso-dilators are called for, and experience proves every day that in the arterial type of the disease few remedies give the patients so much relief as do the vaso-dilators, such as nitrate of sodium, when the heart, beginning to falter and show evidence of strain, will regain a certain measure of tone, especially if digitalis or strophanthus be cautiously used, as suggested by the essayist.

Dr. Edward F. Wells:—I take it that the keynote of Dr. Preble's paper is the importance of differentiating these two types of aortic regurgitation, because of the prognosis and therapeutic contingencies; and the point is certainly well taken, and I think it well to have this matter again brought before the profession.

The statement made that in the bacterial infections the aortic valve is more prone to be affected in the aged than in younger life, may be true. I am not prepared to pass on this subject. However, the explanation given may or may not be true. I believe that in addition to any degeneration lesions which may be present in the aortic region, one should, in the cases under consideration, always reckon with the virulency of the infecting organism; as, for instance, in pneumococcus infection. With the pneumococcus demonstrable in the circulating blood in an extremely large proportion of the cases of pneumonia, and probably present in all, and the frequency with which arteriosclerotic changes occur in the aged, were the theory of the essayist correct one would expect to find in senile pneumonia a very large proportion of complicating endocardites. Experience, however, is not in accord with that assumption. I believe that, theoretically, the virulency of the organism should be here given due consideration. This may also be inferred from another standpoint, that is in a considerable number of pneumococcal infections of the aortic valve, not only is this valve infected, but other organs are likewise infected, as, e. g., the joints, the serous surfaces, etc.

Dr. J. F. Hultgen:—This is the first clear exposition of this disease we have had before the Chicago Medical Society, and I think it is a useful one. I remember, as a medical student, that this differentiation was not taught, and I had to look for it elsewhere; personally, therefore, I am grateful to Dr. Preble for so clearly differentiating between the two conditions.

M. Huchard calls it Hodgson, and the French, particularly Paris clinicians, refer to it as *maladie de Hodgson*. In 1857, Hodgson published a report of a number of cardiovascular cases which he could not classify under any particular head. He did not give it this name, but a clear, concise description, and Huchard, in 1886, called the disease aortic insufficiency, Hodgson type, in memory of the English clinician.

In regard to the semiology, I do not think we should omit the bulbar changes associated with arteriosclerosis. For instance, there is in general arteriosclerosis, aortitis and arteriosclerosis of the basilar arteries. Nowhere in the system do these changes show themselves better than in arteriosclerosis of the bulb. You have not only myosis, but also stenocardial attack in arterial aortic insufficiency. It has often struck me that the anginas of these patients resemble those of the pectoral crisis of locomotor ataxia. We have similar bulbar physiologic and pathologic changes in both diseases.

With reference to the therapy, I consulted Dr. Preble about the treatment of this condition a year ago. I was utterly helpless, and I don't feel comfortable yet. We can not do much with vaso-dilators, such as nitrite of sodium and

potassium iodid. The prognosis is unfavorable. The disease must be recognized early, if anything at all is to be done for these patients. They should be told to lead a life of ease, and, of course, to take other precautions as well. That is about all we can do for them. Huchard emphasizes this in these two conditions by saying that in bacterial aortic insufficiency the heart closes the scene, while in the arteriosclerotic form the brain closes the scene.

Dr. Preble (closing the discussion):—I would like to say a word or two in closing with reference to the remarks made by Dr. Wells concerning pneumococcus endocarditis. I quite agree with him that the virulence of pneumococci has something to do with the causation of endocarditis, but I am rather inclined to believe, in opposition to Dr. Wells, that it is not the pneumococci of high virulence which attack the heart valves, but the pneumococci of low virulence. Pneumococci of high virulence resist phagocytosis, while those of low virulence are attacked by the phagocytes, either the leucocytes or endothelial lining of the vessels. It is the pneumococci of low virulence which give rise to meningitis, endocarditis, or other local processes.

Dr. F. S. Churchill read a paper on The Treatment of Meningococcic Meningitis with the Flexner Serum. Report of Cases.

DISCUSSION.

Dr. Ernest Lackner:—In connection with Dr. Churchill's paper, I wish to report a case that is at present at the Michael Reese Hospital. The patient was a young man, 18 years old, who had had cerebrospinal meningitis for seven days previous to entering the hospital. He was admitted in an unconscious condition, with very high fever, very noisy, and the prospects were that he would die. He had had the disease eight days before we gave the serum. He had Cheyne-Stokes for two days, and his death was expected at any time. The leucocytes numbered 39,000. The diplococcus was determined by Professor Herzog at the Michael Reese Hospital Laboratory. This man was given eight or nine spinal injections, the last injection being 45 c.c. With the first few injections the leucocytes were reduced in number to 22,000. The first injection did not have much effect; the temperature generally rises a few degrees following an injection. Describing Case 4 of Dr. Churchill's reported cases: This child had persistent vomiting, and after the first injection of the serum the vomiting disappeared. The child was unconscious. This man's symptoms are gradually disappearing, the temperature getting normal. It was fourteen days before he got the injection. He had at least eight or nine injections, the last one, as I have said, of 45 c.c. He is gradually improving, and to-day I think his temperature is nearly normal. He is regaining consciousness and talks. I believe he is going to get well.

I think it is reprehensible for any practitioner not to use the Flexner serum in a case of cerebrospinal meningitis, the same as it would be in a man not to use the diphtheria antitoxin in a case of diphtheria.

Dr. Edward F. Wells:—The statistical method of studying these cases is necessary for progress. At the same time, nothing can be more fallacious than statistics. However, when twelve cases of cerebrospinal meningitis treated with the Flexner serum are reported, with only three deaths; and these compared with ten other cases treated in the ordinary way, but without the serum, with nine deaths, as in the twenty-two Akron cases reported by Chase, we must sit up and take notice. There are many things, however, to be considered along these lines. For instance, it has been my misfortune, as well as good fortune, to have witnessed two epidemics of cerebrospinal meningitis in virgin soil, where it had not been known before. My recollection of these cases is very vivid indeed, and I do not believe to-day that the majority of these cases, occurring early in the epidemics, would have been influenced materially by any method of treatment. They were taken sick and died promptly. They were of the most virulent type that one can imagine. In one of these epidemics I had opportunity of seeing some of the later cases, and the virulency of the disease gradually declined; and in the occasional cases which occurred for some years afterwards

my recollection is that the mortality was not more than 50 or 60 per cent., whereas in the early cases practically every one died. Shortly after the World's Fair, when we had a mild epidemic of cerebrospinal meningitis in this city, I saw a little girl, seven years of age, whose initial temperature was more than 110 degrees. She was playing as usual out in the sun, was taken sick, and within an hour, when I saw her, her temperature was higher than my thermometer would register. During thirty days the temperature was persistently above 105 degrees, provided it was not reduced by medical means. There was the most profound prostration, delirium, mental irritability, paralyses, contractures of the joints, great emaciation, etc. This patient is now a young woman, and in perfect health, without anything to show she had this disease.

One of the cases referred to by Dr. Churchill, in the Cook County Hospital, in my service, has been studied with great care, and I wish to say, as an important point in the serum treatment of this disease, that there are at present notable evidences of the benefits having been effected. To be sure, therapeutic measures may be of the greatest possible use without our being able to demonstrate that they have any effect whatever, as, for instance, the effect of quinin on malaria, before that organism is discovered. In this case certain definite results were noted following the injections, as, for example, a marvelous lowering of the leucocyte count in the cerebrospinal fluid, and other effects as well.

Dr. Stocking, who has had charge of the case, can describe those effects better than I can, and I will ask him to do so.

Dr. Fred F. Stocking:—With reference to the case mentioned by Dr. Wells, in which we used the Flexner serum, I will say that when spinal punctures were made we made an effort to count the leucocytes found in the serum. In the first puncture that was made the cells were found to be clotted together solidly, so that they could not be counted. The second time we used the serum from the spinal column there were estimated to be half as many cells to a square millimeter of the serum, and the fourth day there were by actual count 80 cells to the square millimeter. This, it seems to me, is something that is definite. It is true, these cells in the spinal column may have been diluted some by 30 c.c. of clear solution, but not to such an extent as was suggested by the counts. Then, too, another thing that is definite is something which seems to be the direct result of the serum in this case, namely, the fall in the leucocyte count as shown by the charts. That is something that it seems to me can be definitely brought out with the case in point. The first leucocyte count was 22,000. On the fourth day of the injections the leucocyte count was 8,000, which is certainly a very rapid fall.

There is one important feature which might be discussed in connection with the injection of the serum as a matter of interest in this particular case as it seems to suggest the irritation of cerebral centers that may occur when intracranial pressure goes above or below normal. On the second attempt, we removed 42 c.c. of serum, and were able to inject only 30 c.c. The boy did not have any discomfort on the removal of the fluid until we had passed 30 c.c.; then there was complaint, and by the time we had reached 40 c.c. he was very wild. It required everybody near him to hold him, and keep him quiet in order to inject the serum. But with the injection of the serum he began to quiet down, and by the time we were through injecting or reintroducing 30 c.c. of fluid he was sound asleep. On the day of the third injection, for some reason we were unable to obtain more than 4 c.c. of fluid; however, 30 c.c. of the serum was introduced. The boy complained bitterly of pressure for the next two hours. He complained of pain in the legs and head, and retraction was more marked. After two hours this condition subsided and he became quiet. And he went on to rapid recovery, all symptoms disappearing shortly after the last injection, except stiffness of the neck and Kernig's sign.

Dr. Maximilian Herzog:—The most important thing in the use of the Flexner serum at present is the diagnosis. If this serum is specific, it can only be used in cases of cerebrospinal meningitis due to the diplococcus intracellularis

of Weichselbaum. In the cases which have not been diagnosticated as such, and which had to be included in the statistics, the serum ought not to be used.

I have seen the two cases referred to before, in one of which I made a bacteriological diagnosis. The other case was the one that has been referred to by Dr. Laekner. The patient was a young man, 18 years old, I think, and was brought to the Michael Reese Hospital with cerebrospinal meningitis. It is now three weeks ago. There were 30 c.c. of cloudy cerebrospinal fluid obtained on Saturday evening. Unfortunately the case did not come into my hands until Monday morning. I made an examination, found the diplococcus intracellularis, and the serum was used on the patient, but only 15 c.c. This did not have much effect. Then 30 c.c. was given. The patient was in an almost hopeless condition, unconscious, had all the symptoms and signs of complete cerebrospinal meningitis, and could not be aroused from his unconscious condition. The serum was full of leucocytes and diplococci, and after increasing doses and finally using 210 c.c. of the serum, the cerebrospinal fluid has cleared up so that now it contains very few polynuclear leucocytes, but a large number of mononuclear leucocytes. So it seems the patient is getting well, but, of course, is in a very feeble condition.

We have a supply of the serum, and we can place it at the disposal of any practitioner who wishes it.

Dr. Ernest Lackner:—I will say that the Flexner serum is followed by results similar to those obtained from the injection of diphtheria antitoxin in cases of diphtheria. In the fourth case reported by Dr. Churchill about twelve days after the child had fully recovered from the attack it was stricken with high temperature and had a marked urticaria, somewhat similar to the condition we sometimes find following the use of diphtheria antitoxin. In the case of the young man we have in the Michael Reese Hospital, following the injections he developed suddenly swelling of the cervical connective tissue of the neck on both sides anteriorly, so that it seemed almost like a case of mumps. The swelling, however, was not in the region of the parotids, and did not interfere much with respiration. That condition has subsided, but he also got a swelling around the left hip joint, which has subsided. These were the local symptoms that were caused by the injection of the serum most likely. The possibility of a secondary infection must be kept in mind.

Dr. J. F. Hultgen:—I was fortunate enough to see this case with Dr. Streich, and knowing its course, I made notes on it. I saw the case twice a day for four days. At the start the temperature was 107°, that is, it was 102° in the morning, and in the evening at five o'clock it was 107°. Pulse 150. The patient had the typical symptoms of cerebrospinal meningitis. Dr. Streich made a clinical diagnosis of meningitis and later by exclusion we considered it cerebrospinal meningitis. There was no reason to suspect tuberculosis. Dr. Lackner confirmed the clinical diagnosis. The bacteriological diagnosis was made by Dr. Streich and was confirmed by Dr. Herzog. With the diagnosis thus established, we injected the first dose of Flexner serum, about twenty hours after the onset. The temperature then was 103°. Pulse 160. Respiration, 50; coma, opisthotonus and marked Kernig's symptom. After this first injection the temperature not only declined, but remained down, and did not rise again until the ninth or tenth day, when the advent of urticaria and of joint symptoms rose to 102½°. The second serum injection was given 36 hours after the first with a temperature of 100; pulse, 130; respiration, 40; mind clear, but slight strabismus. Third and last intraspinal injection of Flexner serum on the fourth day. The blood findings were fairly complete in this case. (See below.) I made bacteriological examinations repeatedly, and also made three punctures. The first fluid withdrawn was bloody and amounted only to twenty drops. The second fluid withdrawn was bloody and purulent, and the third, clear, transparent, but not quite limpid.

	Polymor.	Small Mono.	Large Mono.	Eosins.	
1. A half hour before 1st serum; 19,800 total w. b. c.	91	8.7	0.3	0	510 w. b. c. counted.
2. Twenty hours after 1st injection; 15,000 total w. b. c.	83.3	15.3	1.6	0	490 w. b. c. counted
3. One hour before 3d serum dose, 4th day; 12,600 total w. b. c.	71.5	24.	3.5	1	390 w. b. c. counted.
4. Ninth day of disease; 13,200 total w. b. c.	77.7	19.5	2.3	0.5	420 w. b. c. counted.

Accession of urticaria gigans, arthralgia, temperature, 103; pulse, 120; mind clear; spinal rigidity nearly absent.

Note the proportion of polynuclears to the others; absence of eosinophils during first 3 days, and the gradual re-establishing of the leucocytic equilibrium.

The fall in the polynucleosis and leucocytosis is not as marked as one would wish to see it.

Dr. A. Belcham Keyes:—I am very much interested in this subject because here we are dealing with a serous membrane very much like that of the peritoneum, and in considering the meninges I was wondering whether it would be possible under certain conditions to apply some of the ideas to the peritoneum. I remember in my early hospital days the controversy that was had over diphtheria antitoxin, and the question where to inject. Can there not be a difference of absorptive power in the meninges under different conditions? Whether or not under certain conditions the intrameningeal injection of Flexner's serum would give variable results on account of the interference with resorption due to the inflammatory changes? I throw that out as a suggestion. We know that in the peritoneal cavity, if we inject material under certain conditions of inflammation we get much less resorption than when the normal power of resorption is present. A 150 pound man in one hour will absorb about six quarts of ordinary saline solution through the peritoneum, but under abnormal conditions, when the stomach and stigmata are closed by fibrin the absorption is much slower or may be hindered entirely. From this one might argue that early intrameningeal injection would give results, while a late intrameningeal injection might not.

Dr. Churchill (closing the discussion):—The cases cited by the speakers are interesting, but there are many questions still to be worked out. I wish to emphasize what Dr. Herzog said in regard to the diagnosis. In reference to the importance of the meninges, it is very essential to resort to lumbar puncture, and then if we get a slight response or reaction we should inject the serum. Flexner advises the use of the serum just as in diphtheria, and tells us not to wait for a bacteriologic examination before resorting to the injections, but obtain that afterward. No harm will be done by giving the injections, and it will save time in case a bacteriologic examination verifies the clinical diagnosis. That is comparable to the practice we all follow in the use of diphtheria antitoxin, in that we do not wait for a bacteriologic examination in a case of suspected diphtheria, but give the antitoxin, if the case clinically looks like diphtheria.

Regular Meeting, held May 14, 1908.

Regular meeting, held May 14, 1908. with the President, Dr. H. B. Favill, in the Chair. Mr. G. B. H. Moynihan, Leeds, England read a paper on Diagnosis and Surgical Treatment of Duodenal and Gastric Ulcers.

DISCUSSION.

Dr. B. W. Sippy:—I do not take it that our distinguished guest intended to wipe the medical side of the question off the slate entirely. The paper dealt with the surgical treatment only and was not intended to appeal to the medical side of the subject. Relative to the frequency of duodenal ulcer, there is a growing belief that it is very common, and that it is becoming more so. Some of our best authorities believe that it is present nearly as often as ulcer of the stomach. That is based entirely on experience, disregarding entirely the statistics compiled for years at the postmortem table. The cases studied number about 2,500. In one group ulcer was present in 33 per cent. on the lesser curvature; 32 per cent. on the posterior wall; 14 per cent. at the pylorus; 6 or 8 per cent. on the anterior wall; 6 per cent. at the cardiac orifice; 3½ per cent. on the greater curvature, and 3½ per cent. on the fundus. Estimating now that every one of these pyloric ulcers was a duodenal ulcer primarily, I fail to see where the frequency of duodenal

ulcer comes in, although the frequency of this form of ulcer, as shown by these statistics extending over a period of many years, collected by many observers, is much greater than we supposed it was, but we are not ready to admit that it is as common as gastric ulcer.

Relative to the symptoms of duodenal ulcer coming on two hours after eating, being relieved by the taking of food; pain that continues until the next meal; that recurs at night; these are all symptoms characteristic of gastric ulcer, and I defy anybody to differentiate accurately between duodenal and gastric ulcer on the basis of these symptoms alone. It is unfortunate that we have no more accurate means of differentiation, but the symptoms as enumerated are just as frequent in duodenal as in gastric ulcer, and they are in no way characteristic of duodenal ulcer. Gastric ulcer has been shown repeatedly to be associated with such symptoms caused by the irritation of the raw edges of ulcer, coming on after food is saturated with gastric juice. The pain comes on two or three hours after eating as often in gastric as in duodenal ulcer. The same relation exists in both instances to the heavier the meal the later does the pain come on and the less is its severity. The larger the meal the more albumin it contains and the more acid is taken up and the later the onset of the pain.

Relative to the indications for surgical treatment, I believe that among the more conservative surgeons it is generally admitted that gastric ulcer of a few weeks' or months' duration heals readily under the influence of intelligently applied medical treatment. I believe that the opinion is growing stronger that the surgical treatment of gastric ulcer is applicable rather to the complications of the disease than to the disease itself, conditions that are largely mechanical and relievable and removable by surgical procedures. If such is the case, the diagnosis of gastric ulcer must take into consideration the following points: Is gastric ulcer present? Are the signs and symptoms sufficient to permit of a diagnosis of gastric ulcer? If so, what complications are present? Is there reason for believing that malignant disease is present in association with the ulcer? Is pyloric obstruction present, and if so, is the obstruction due to actual cicatricial narrowing of the pylorus or to spasm of the pylorus incident to the ulcer in the pars pylorus, a closure due to spasm of the muscle, which is not at all rare.

Those two conditions must be differentiated in such cases. Again, is continued secretion present? This should be part of the diagnosis in every case. Nearly all of these conditions may be determined readily. If continued secretion is present it will prevent healing of the ulcer, and it is this continued secretion that causes the pain at night, the secretion digesting the ulcer and irritating it. Are perigastric adhesions present? They may be producing the pain or interfere with the motility of the stomach. Is perigastric abscess present, or hour-glass contraction or other deformity which may be interfering with the motility of the stomach? Having determined the conditions as pointed out, we should also determine the probable age of the ulcer. The older the ulcer the broader, the more indurated are the edges, the deeper the ulcer, and the more difficult to heal it. The location also influences the prognosis. Ulcer at the cardiac orifice or at the orifice does not heal as readily as ulcer elsewhere. When the ulcer is located on the anterior wall there is greater danger of suppuration.

After having determined these points, and not until then, are we in a position to advise whether medical or surgical treatment should be instituted in a given case. There is no question but that surgical treatment should be instituted in every case where perforation is present and where high grade pyloric obstruction is present caused by cicatricial narrowing of the orifice, unless there is some contraindication, like old age, and it is remarkable what can be done in inoperable cases in the way of treating these patients by carefully regulated medical treatment. Then there is no question that operation is indicated whenever we have a good reason for suspecting malignant disease in addition to the ulcer and when perigastric abscess is present, perigastric adhesions interfering with motility, or pain that is not controlled. Certain cases of hemorrhage demand surgical treatment, but it is difficult to determine just which cases of hemorrhage should be treated surgically. The vast majority of cases of hemorrhage are best treated medically, but in certain cases the surgeon must be called or life will be lost

About 15 per cent. of the fatal cases from hemorrhage occur before the surgeon can be called. Thirty-five per cent. of deaths from hemorrhage occur in from twenty-four to thirty-six hours after the onset of the hemorrhage. Some of these cases should be saved by the surgeon by early operation. Then 50 per cent. of deaths occur in cases where surgical treatment may be of value, cases of constant oozing. Careful medical treatment should be instituted, and we should not allow hemoglobin to sink lower and lower before operating, but operate as soon as it is seen that medical treatment will not control the oozing. It is difficult to say just when to operate in these cases, but by careful watching we can arrive at a satisfactory conclusion. But the majority of cases are best treated medically, about 90 per cent.

When these conditions are present there is no question that surgical treatment should be instituted. In all other cases I believe it is equally certain that surgical treatment should not be instituted until after carefully applied medical treatment has been carried out. Many failures have come from inefficient management. The physician has not taken it seriously enough; he has not given the patient to understand that he must co-operate enough and long enough. If no greater skill were used in the surgical management of ulcer than is used in the medical treatment, the mortality of surgical procedure would be frightful. If symptoms of gastric discomfort have been present for years, if ulcer has been continuous during that time, we are going to have great difficulty in getting it to heal medically. Such cases should be analyzed as to whether there is recurrent ulcer. Many such cases occur. Periods of comfort, followed by periods of discomfort, means recurrence of the ulcer. Then the question arises, how long has the ulcer been present. If not too long, it is amenable to medical treatment. If medical treatment has been given a fair trial and the symptoms persist or return, then the question of surgical treatment should be taken up and considered seriously. If the patient is poor and can not carry out the medical treatment long enough, surgical treatment should be adopted in most cases. If the patient can carry out the treatment longer he may choose between surgical and medical treatment, but we must not temporize too long.

Gastroenterostomy has not done as much as we hoped for, but in cases that do not get along under medical treatment, the surgeon should perform an exploratory laparotomy with the view of excising the ulcer. It must be understood that there are certain cases of gastric ulcer that will never get well under surgical treatment, but under combined surgical and medical treatment they may be made comfortable. Death from ulcer takes place as the result of hemorrhage, infection or perforation. Perforation can be controlled by the surgeon; hemorrhage frequently can.

Dr. A. J. Ochsner:—It is quite impossible to discuss all of the important points in this paper. We have for many years learned much of what we know of this condition from Mr. Moynihan's work, so that it is out of the question to discuss the surgical aspects of this paper. Concerning the diagnosis, especially the differential diagnosis between gastric and duodenal ulcer, I believe that Dr. Sippy's statement that the symptoms mentioned by Dr. Moynihan may indicate either gastric or duodenal ulcer is correct, but we must bear in mind that the surgical and medical diagnoses differ. I would not hesitate to accept the diagnosis of the experienced surgeon who has operated several hundred cases because he has had to prove his diagnosis in the living patient at the time of operation. I would add to what Mr. Moynihan said, that if the pain is greatly increased on pressure in the median line I would expect to find the ulcer on the gastric side of the pylorus. If deep pressure to the right of the umbilicus and a little above increases the pain, I would expect to find the ulcer in the duodenum. My personal experience has not been as great as that of Mr. Moynihan, but I should expect to make but very few mistakes in diagnosis, and I should expect to prove the correctness of the diagnosis at the operation in nearly all of these cases. We must remember, however, that the patients that come to the surgeon are not the patients that come to the internist. They are the late cases, the cases that have existed for a long time. It is seldom that the surgeon sees a case of gastric ulcer that has not been treated by one or more practitioners before and for that reason we would be but poor diagnosticians if we should not be more positive about our diagnosis.

Regarding the conclusions that Mr. Moynihan made, I believe that they will be borne out by practice for many years to come. The experience that has been accumulated by men who operate on the stomach frequently is so considerable that there are certain facts which have gone beyond the experimental stage. Mr. Moynihan advises to operate only when we have a demonstrable lesion. This fact was unknown until it was demonstrated by men like Moynihan, Robson, Mayo, Murphy and others, who have done so much work in this line. There are physiologic reasons why we should not operate on a case in which we can not demonstrate a pathologic condition. We have in the stomach and duodenum a very carefully arranged machine. Any operation performed on this machine will disarrange it, so that if we have not a lesion which has of itself seriously disarranged the machine, the chances are that the machine can be restored without operation to a fairly normal condition, a condition which is very much more nearly normal than is the condition which will result if we do a gastroenterostomy. The stomach is a storeroom, an apparatus for the secretion of digestive ferments and hydrochloric acid, a mixing and grinding machine. If a gastric ulcer prevents the grinding of food because of its location in the pyloric end of the stomach and the obstruction caused by the ulcer prevents the organ from emptying itself, we have a distinct indication for operation in all cases that do not recover permanently under dietetic treatment. I believe that all agree that we should prevent the occurrence of perforation, and if we study the condition of ulcer of the stomach and duodenum thoroughly, we should ordinarily be able to do this by diagnosing and treating the gastric ulcer properly before perforation can occur. Regarding the excision of ulcers, there is still a considerable amount of uncertainty. Recently there was introduced an element by Mr. Cameron which, while it has been known for a number of years, was not brought out with sufficient force until now. He has shown that the introduction of alkaline fluids into the stomach causes the stomach ulcer to heal. Every one who has operated on many cases has found that ulcers of the stomach which in themselves did not obstruct the pylorus, but invaded the pancreas, or became so thoroughly adherent to the posterior parietal wall that excision was impossible, would heal as a result of gastroenterostomy. I believe that every surgeon has performed gastroenterostomy hoping to reduce the accumulation of irritating acid stomach contents in that manner. My personal experience has been that notwithstanding the fact that there was no obstruction to overcome, still a gastroenterostomy in these cases has resulted in a perfect healing of the ulcer. How did this happen? There was no possibility of benefit, except from the fact pointed out by Mr. Cameron because the pylorus was wide open and the gastroenterostomy simply favored the introduction of alkaline fluid in the form of bile and pancreatic fluid as pointed out by Mr. Cameron. I believe that because of this fact excision of gastric ulcer may become less desirable and less frequently done than in the past few years. There are a few men, and foremost among them is Mr. Moynihan, from whom we have learned our stomach surgery.

Dr. Frank Billings:—I think that gradually we are coming a little nearer together, the medical man and the surgeon. We have discussed this subject every year for five or six years, ever since surgery stepped into the field. We of the medical side are, I think, more surgical, and the surgeons are more conservative than they were five years ago. There will be differences of opinion between us until the time comes when pathology shall teach us the cause of ulcer. The longer I practice medicine the more uncertain I become about some things. I am not nearly as sure as I was twenty years ago. I can not agree with Dr. Sippy about the certainty with which he has expressed himself concerning the medical knowledge of the location of the ulcer or as to its age; nor can I agree with our guest and my surgical colleagues when they are so positive in their statements concerning the ulcer location with or without stomach analysis. Ulcers are peculiar in the stomach, and I think our differences of opinion and want of knowledge and our positiveness and hesitancy depend somewhat on that. A chronic ulcer may be latent for years and have periods of activity when the symptoms are prominent and others when the patient appears to be perfectly well. One of the most important things in the diagnosis of ulcer of the stomach is a good history. I think that is borne out by every man who has had experience with these patients.

Now, as to the diagnosis, and also bearing on the prognosis and treatment. If a patient has suffered from symptoms of chronic ulcer for seven, nine, twelve or even fifteen years you will not hesitate to place that patient in surgical hands. So that the history is important, perhaps as important as any other one thing in the diagnosis.

As to the diagnosis of duodenal ulcer, I must agree with Dr. Sippy. If you compare the statistics of Welch, who did not make his statistics entirely from his own work, but from that of others, while these statistics are made up from post-mortems, we are a little bit doubtful about them when we have such men as our guests, the Mayos and other surgeons, who say that they find duodenal ulcers so often. Therefore, I am in doubt, on the one side, as to the literature, and am inclined to believe that the condition is more frequent than medical men suppose.

I am very glad to hear what Mr. Moynihan said about symptoms and what Dr. Sippy said about gastric ulcer, especially ulcer near the pylorus, but I have had patients with duodenal ulcer who had no pain at any time. They had other symptoms, such as deficient motility, fullness in the abdomen and discomfort for a long time after eating, but they had no pain. I saw a patient some years ago who was operated on. I was called into consultation because the man had a pleurisy with effusion. His physician withdrew some fluid and it was purulent. In a few days the man had a swelling in the region of the gall bladder. A few months before the man had pain in the abdomen. A surgeon pronounced it appendicitis and advised operation, which was refused. He became better after a few days' rest in bed. Then he had pain in the right side, and the doctor found evidences of fluid in the pleural cavity, and a few days later he withdrew the purulent fluid. I examined the abdomen and found a swelling in front under the ribs. It was tympanitic and a distinct mass. Then I went back to the history and was able to make a rational diagnosis of perforating ulcer of the duodenum, subphrenic abscess and involvement of the pleura. Dr. Andrews operated and found that to be true. I would like to have Mr. Moynihan tell us whether in the cases he has seen since 1905 he has noted this fact, that pain may be absent. I have noticed one symptom in duodenal ulcer that is not mentioned in text-books, and Dr. Mayo confirmed my observation. The patients have in the night most frequently a gulping of fluid, either bitter or sour, and rarely, if ever, have they ulcer of the stomach. I think that that is a most significant thing in duodenal ulcer.

I was also gratified to hear Mr. Moynihan's paper to-night. He and other surgeons are coming right around to a sensible stand on the technic. When for years and years we turned over a patient to the surgeon, he did a gastroenterostomy and sent the patient back to us. I have had all kinds of trouble with such patients. I have become a bugbear to the surgeons from constantly saying that if the disease does not involve the pylorus they had no business to do a gastroenterostomy. And what Mr. Moynihan said to-night I was glad to hear, and that is that, if the pylorus is involved, perform a gastroenterostomy, and, if the ulcer is elsewhere in the stomach, remove it, but leave the normal mechanism of the stomach as it is.

I believe that there is a medical treatment for ulcer. If the case is recent put the patient to bed. Feed him as he should be fed, and medical men differ somewhat in that, although I do not believe that it makes much difference. Stop the secretion of the stomach, pump it out, removing the free secretion at least twice a day, and leave in the stomach an alkaline fluid. In three or four days the stomach ceases to secrete the acid gastric juice and the patient suffers less discomfort. Give enemas of salt solution and then begin feeding slowly with milk and lime water and watch the patient until he can take soft food. Watch these patients not one month, but three months, six months; watch them, examine them. If that were done by enough of us for a certain time we could speak with more positiveness.

I agree with Dr. Sippy when he says that the majority of medical men do not give the treatment properly, and that if surgery were done in the same manner as the medical treatment the mortality would be frightful. I believe that a chronic calloused ulcer is a surgical case, and I believe that we could prove that

this is so by long enough observation of medical treatment. I want to congratulate Mr. Moynihan, from whom I have learned much to-night.

Dr. John B. Murphy:—I wish, first, to compliment the essayist on his arrangement of his facts. He had no theory to support; he gave us a citation of facts, and the very presentation of them is an evidence of the care with which his cases were analyzed. The immediate results are striking; the remote results are still more striking. That a patient should recover from an operation is one element; that a patient is well after an operation is another element, and it is the final results that make this paper a milestone in surgery of the duodenum and stomach.

The question as to what class of cases are surgical and what class of cases are medical I believe that on that point the surgeon and the medical man are agreed. I am sure that Mr. Moynihan did not for one moment intend to imply that acute gastric ulcers or those occurring in the young were surgical cases. Not at all. There is an element in the statistics of the postmortem room that is accurate, when you consider the enormous number of gastric ulcers that occur in young girls, young people, and that heal under medical treatment. They are recorded twenty, thirty or fifty years afterward in the postmortem room as ulcers of the stomach. That is an entirely different condition from the patient who is referred to the surgeon because of a chronic ulcer, and unfortunately he catches a number of the cases of neurosis with gastric symptoms. And he catches still another type, more disagreeable, the patient with a symptomatic ulcer, who presents all the typical symptoms that make up the clinical picture of gastric ulcer. He operates on that patient, but fails to find any ulcer. Formerly he did a gastroenterostomy, and the patient was a wall-flower in his office from that time on. We have all had that experience, but now physicians and surgeons are agreed that a gastroenterostomy should not be performed unless there is a palpable ulcer, and, from my personal experience, I would say that no operation should be done unless that ulcer interferes with the outlet of the stomach.

If there is large, calloused ulcer of the stomach—and they are common in the class of cases referred to us—I have not become as surgical as has Dr. Billings, and I believe that in these cases we should do a gastroenterostomy. Some of them can and should be excised. I arrive at a conclusion as to the surgical procedure on about this basis: The great majority of gastric ulcers are in the neighborhood of the pylorus, where they interfere with the grinding and outlet of material. That class of ulcers, when chronic, old and indurated, demand surgical treatment of a radical type for a permanent cure. Whether it should be a gastrostomy or gastroenterostomy has not been settled definitely, but if it was my stomach it would be a gastroenterostomy. If that did not relieve it, then we have established a connection between the stomach and intestine and we can do a gastrostomy later. I feel that that would be on the side of caution and of a saving of hazard to the patient.

One can not help but feel impressed with the statements on the diagnosis. Who can write a book on diagnosis? That man has not yet demonstrated that he was born. Diagnosis is a personal element. We get something that we know, and we know it as no one else knows it, and we can not tell it to any one else. When you have seen one or two hundred cases of duodenal ulcer, with a demonstrable lesion present, and you have operated in all these cases and found the ulcer, you get a conviction in the diagnosis of that particular subject that you can not impart to others so that they can make the same diagnosis. I wish that I could feel the same conviction in the diagnosis of duodenal ulcer that I have about appendicitis. I am free to admit that the large number of duodenal ulcers have passed through my sieve. Therefore, it seems to me that the surgeon and the medical man are a unit; that the pyloric and the duodenal ulcers—a large percentage of the latter and probably all of the former—are surgical cases, while the acute gastric ulcers are probably all medical.

Mr. Moynihan (closing the discussion):—Once upon a time three men, representing three great nations, were asked to write a description of a camel. They were a Frenchman, a German and an Englishman. The Frenchman put on his newest suit of clothes, donned his brightest tie, selected his best girl, and spent an afternoon at the zoological garden, and went home and described the camel.

The German retired for profound study to his private chamber. He had ordered in very large quantities of the fluid eustomary to this intellectual exercise in that particular country; he got a large pipe and a considerable reservoir of tobacco. He took down volume after volume from a well-lined library, and looked up the statistics as to the numbers of camels born in various parts of the world, the anatomy of the camel, physiology, habits, and in various other directions endeavored to find out what had been written by great authorities on the life and habits of the camel. He produced an exceedingly learned treatise about the camel.

The Englishman took a boat across the Mediterranean and went to the desert. He bought a few camels, traversed the desert with them; he fed them, groomed them, rode them, lived with them, and learned everything there was to be known about the camel by association with it. He returned home and wrote a treatise about the camel. That is a parable. I will not endeavor to point out who is the general practitioner, the physician and the surgeon in the camel of the duodenal ulcer, but I want to say that I very deeply appreciate the way in which Dr. Sippy put a very bad case.

Dr. Sippy quoted statistics by one of the greatest authorities, and he said that we can not ignore those statistics. I should be the last person in the world to ignore statistics. I look with the greatest regard on the illustrious men who worked in this field before I was born. Who would ignore these statistics? But I will give you an evidence of what statistics can do when cultivated from the postmortem room. A very good friend of mine, Hale White, of Guy's Hospital, read a paper before the British Medical Association last July, the address on medicine. He said that in forty years in Guy's Hospital they had had thirteen thousand odd autopsies. There is probably no hospital in the world where post-mortem examinations are made with more careful scrutiny of every part of the abdomen than at Guy's. In forty years there was found at Guy's only one case of stone in the common bile duct. Dr. White says that patients with stone in the common bile duct do not die; therefore, when a patient comes with stone in the common bile duct, he should be advised not to have an operation done because he will get well without it. It is really a very serious position for a great physician to take.

General practitioners have told me that they have had several patients die with stone in the common bile duct because they refused operation. I have known two such patients to die. Now, that is the fallacy of postmortem statistics. I do not ignore them. I want to emphasize them because I want to point out their fallacy. If you base your information on the postmortem room findings, you are building your house on the sands.

There is a pathology of the living, and I want to emphasize that it is the pathology of the living which it is our business to study. This applies to duodenal ulcer and many other things. I have looked up the opinions expressed by the greatest living physicians with regard to this particular disease. I have read what Ewald and Boas have said about it, and I think that they have not the least idea what duodenal ulcer is. I do not think that either of them have seen a live duodenal ulcer. They have not been in the desert with the camel.

If you read text-book descriptions of the diseases of the gall bladder, especially cholelithiasis, and I have in mind one of the greatest books ever written, Professor Osler's work on medicine, read the description he gives, and you will find that he describes certain phases of gallstone disease. What are they? They are preventable complications of gallstone disease, not the gallstone disease which it is the surgeon's business to relieve. The plea I want to make is this: If you read the text-books on medicine, you will find described with perfect accuracy those symptoms which have been relieved during the life of the patient and verified at the postmortem table by the physician. It is our business to heal the living, and a new system requires to be written by the man not yet born deplet-

ing the inaugural symptoms of disease. That book must be written by the general practitioner or by the surgeon, and the description must be verified with equal accuracy by the display on the operating table of the lesion which is supposed to exist. We must correlate those symptoms with the pathology of the living. I am perfectly certain that anybody with the conspicuous ability that Dr. Sippy has with regard to these things, if he will get a series of patients who give him the history I have given, and follow them to the operating table, there will be no further room for argument. I have had physicians deny most positively before I operated on the patient that there was any lesion to be discovered, and it is my custom to draw an outline of the stomach and to indicate the position of the lesion before I start the operation. That is really putting yourself up to be shot, but when you are fighting a cause like this, if you are wrong, it is your business to be shot. If I am right, I am satisfied with what I have done. If I am wrong, it will help me in the next case.

It is your business in dealing with these cases to make a most careful scrutiny of the history, to draw conclusions deliberately and to be judged by the on-looker at the operation whether you are right or wrong. I am willing to be put to this test, and you have surgeons here, than whom there is none better in the world, who will put themselves to the test.

I had to open a discussion a year ago or so before a London society and I said what I said to-night. A distinguished medical baronet said that I was wrong; that I could not make a diagnosis, although I might make a shrewd guess once in a while. Up to that moment I had operated on one hundred cases of duodenal ulcer; these patients had told me a particular story, and I had gone into the smallest details of the history, and had opened the abdomen one hundred times and had seen a duodenal ulcer one hundred times. I invited the medical baronet to come with me to see the one hundred and first case on which I was to operate the following morning. He did not come—but it was a duodenal ulcer all right.

Dr. Sippy said that the patient should be turned over to the surgeon when the physician could not help him. That is absolutely the wrong position to take. If a physician can not do a patient with organic disease of the stomach any good, that patient has no organic disease at all. It is the patient that the physician can do some good to that the surgeon can cure. The point is that the mimicry of ulcer of the stomach is so exact that there are patients where one can not say positively whether organic disease is present, but if the patient is not benefited by rest in bed, restriction of diet, etc., the patient, in all probability, has nothing organic the matter with him. If present, the medical treatment will give relief. If the patient is not benefited by that, then the physician is anxious to hand that case over to the surgeon, and the surgeon is not in the least degree anxious to have that patient transferred, and it is that particular type of case when operated on which will bring discredit on gastroenterostomy. If the patient is not relieved of her symptoms, she will merely have the character of her symptoms altered, so that she vomits bile instead of food.

I feel that it is a singularly bright day in my life when I am asked to come to Chicago and be with you. I have read your transactions with a considerable amount of diligence and an immense amount of profit. I have found Chicago superlatively characteristic of America, so far as its surgery is concerned. The most beautiful thing about surgery in this country is the enthusiasm of the people practicing it, and the fact that the men practicing it are exactly the men who should do this work. For me to come here and be in contact with the men who are doing the world's work in surgery is an immense stimulus and an immense benefit, and if there is any little thing I have said or done which will give you a thought about your work it is only 1 per cent. of interest on the large capital you have invested in me in Chicago and America. Surgery in America is going ahead of us; the work done here is colossal; it is magnificent, and the great thing about it all is that the right men are doing it.

Regular Meeting, May 27, 1908.

Regular meeting held May 27, 1908, with the president, Dr. H. B. Favill, in the chair.

RHINOSCLEROMA: REPORT OF A CASE.

STANTON A. FRIEDBERG, M.D., CHICAGO.

(Abstract.)

Rhinoscleroma is quite uncommon in the United States. The total number of cases reported will not exceed fifteen. Three cases, including the present one, have been seen in Chicago. The cause is supposed to be an encapsulated bacillus belonging to the mucosus capsulatus group. It is an exceedingly slow and progressive disease. It is characterized by the increased formation of fibrous connective tissue which is transformed into scar tissue, thereby producing extensive deformities of the affected parts. The symptoms are usually only local.

History.—Female, aged 21, married, born in Austrian Poland. She has been in this country two years. Family history negative. Previous history negative. Her present trouble began in the fall of 1907. The first symptom was a sensation of dryness in the throat, accompanied by slight hoarseness. Soon after this a feeling of dryness in the nose, with obstruction to breathing, came on. The hoarseness gradually grew worse. She began to cough; there was some expectoration; choking spells; attacks of dyspnea. At the time of the first examination the dyspnea was severe and was both inspiratory and expiratory. Cough was frequent and she complained of soreness in her throat. There was almost complete aphonia. Tinnitus aurium was also complained of. Other than the cessation of the menses and a feeling of weakness, constitutional symptoms were of a minor degree.

Examination.—Chest and abdomen negative. Urine normal.

Nose: No external evidence of the disease. The nasal mucous membrane of both sides was covered with a thin whitish secretion, which, on removal, showed the membrane to be paler than normal. On the right side the middle turbinal is adherent to the septum both at its anterior and posterior ends. The inferior turbinal has a roughened and irregularly nodular appearance. On the left side the inferior turbinal is adherent to the septum for about four-fifths of its entire extent. Opposite the middle meatus on the septum an irregular nodule is seen. At the anterior end of the inferior turbinal there is a grayish-white area resembling scar tissue. In the nasopharynx both sides showed infiltration, the right a little more so. The tubal orifices were narrower than normal. The turbinal tissues felt hard to the touch of the probe and there seemed to be an increased sensitiveness present.

The pharynx was pale and showed atrophic areas on the posterior wall. At the sides were a number of enlarged blood vessels. There was a characteristic nodule back of the right posterior pillar. This was grayish-white, three-eighths of an inch in length and one-quarter of an inch in width. Above this and extending into the nasopharynx a similar nodule was seen. The base of the tongue and epiglottis were normal.

The larynx partook of the general pallor. About the center of the right false cord a nodule was seen. The left false cord is increased in size by what appears to be a diffuse infiltration. The true cords are both involved, although the right can be partly delineated and still retains some motion. Below the cord on both sides there is a mass which extends into the trachea. This was the cause of the dyspnea and accompanying symptoms. The glottic and subglottic spaces were so encroached upon that it was with difficulty that a No. 1 Schroetter bougie could be passed. The color of the growth was gray, with a slightly reddish tinge. There was no ulceration of any of the affected parts.

Both membrana tympani were lusterless and were retracted. A culture obtained from the nose gave the so-called bacillus of rhinoscleroma.

The treatment has been unsatisfactory, but latterly some good results have been reported from the use of the *x*-ray. In this case the treatment up to a few weeks ago was merely palliative and consisted in passing a No. 1 Schroetter bongie to dilate the subglottic growth. On account of increasing dyspnea, tracheotomy finally became necessary.

"Recent Advances in the Treatment of Tuberculous Sinuses and Abscesses, with Demonstration of Patients and Colored Microphotographs," by Dr. Emil G. Beck. "Lantern Slide Demonstration of Diseases of the Gall Bladder," by Dr. Emil Ries.

DISCUSSION ON PAPER OF DR. RIES.

Dr. D. N. Eisendrath:—This paper is exceedingly interesting and valuable to the general surgeon. We have been puzzled in a number of cases by the recurrence of gallstones after operation. At first we were inclined to believe that it was the fault of the operator, who had overlooked a stone, but we are beginning to see the reasons for this recurrence. This paper is certainly new in pointing out the possibility of gallstones forming in the wall of the gall bladder, in one of these diverticuli, as in the intestines, where enteroliths form in diverticuli. Formerly it was thought that often these stones formed in the bile ducts in the liver and wandered down the hepatic duct into the gall bladder. Undoubtedly a considerable number of stones form in the gall bladder, and this is an indication for doing a complete cholecystectomy, removing not only the gall bladder, but also the cystic duct. During the past few weeks I operated on a patient whose case illustrated the point made by Dr. Ries. The patient was operated on eleven years ago, the gall bladder being opened, the stones removed, and the bladder dropped back. He came to me recently with symptoms of cholelithiasis. I found gangrene of the mucous membrane and two calculi, showing that simply a cholecystotomy did not suffice to prevent a recurrence of the trouble.

Dr. A. J. Ochsner:—All those who have had a large experience in operating these cases have learned that there are certain gall bladders that should not be left in the patient, but this does not indicate that cholecystectomy should be done in most cases. Whenever a gall bladder can safely be left in place this should be done, because in these cases there is not only disease of the gall bladder, but also of the lower portion of the gall tract, of the hepatic duct and of the common duct. There is also in a considerable proportion of these cases disease of the liver. In these cases the gall bladder may be left in place and used for drainage. The general condition of the patient improves much more rapidly, the hepatitis subsides and the liver decreases in size. If the common duct has been injured before the primary operation so that it can not carry the bile from the liver to the intestines, the gall bladder serves as an excellent means for carrying the bile behind the mesocolon into the jejunum.

Recurrence of gallstones is not so much the result of an error in surgical technique as an error in surgical judgment. It is largely a matter of experience. At first you leave in some gallstones because you did not know how to find them. Later on you leave some of the stones in the hepatic duct, and later on you will leave some diseased gall bladder which make trouble subsequently, and after one has made a large number of blunders these become progressively less frequent. Every time we have a scientific reason given us like the one demonstrated by Dr. Ries we had best take notice. Some five years ago when Dr. Ries first called attention to this matter I placed it in the hands of my pathologic assistant, and we have been able to verify Dr. Ries' statements in a large number of those cases in which the removal of the gall bladder was indicated.

Dr. A. Goldspohn:—I would like to ask Dr. Ries whether I am correct in believing that the majority of these bladders which show this abnormal growth of glands and the formation of diverticuli and lead to the formation of embryonic gallstones in the wall of the bladder, whether these are not the small contracted

gall bladders that ought to be extirpated anyway. Dr. Ries said that the distended gall bladder, the cystic gall bladder, contains very few glands, and what I have seen of them leads me to believe likewise. If this view is correct, then this microscopic study would merely endorse what macroscopic judgment indicates. It would further denote that this work does not call for extirpation of the gall bladder as a rule, for reasons such as Dr. Ochsner cited. The gall bladder is very necessarily used sometimes for drainage, which would not be very well accomplished by extirpation.

Then we frequently get inflamed gall bladders where infection is not limited to the gall bladder mucous membrane, but there is also a pericycstitis, a rather alarming condition in which drainage from within and outside around the infected bladder is needed. To attempt to remove the gall bladder under these conditions would greatly and unnecessarily raise the mortality rate. I have a number of times experienced the discharge of gallstones after the first draining of the gall bladder, but those were stones of such a size that they could never have had their habitat in the wall of the gall bladder and could never, since the primary operation, have developed to such a size from small stones lying in the wall of the gall bladder at the time of operation. We have believed that they come from other sources. We know, too, that the lumen of the cystic duct is very tortuous, and that stones often lodge there and work their way upward in response to drainage instituted up to that point. Therefore, draining such septic and dangerous cases is the safer procedure. If it should happen that we retain a discharging sinus, from experience in several cases I would say that it is possible to obliterate the sinus by packing it with iodoform gauze every second or third day for a number of weeks, and in that way we either produce health of the bladder lining and closure follows, or we obliterate the mucous membrane, and then there will be closure by obliteration of the tract. I have gone so far in two cases as to impregnate the iodoform gauze repeatedly with a 10 per cent. formalin solution, which at the time of introduction caused some pain for ten or fifteen minutes; then the packing was endured for a number of days with comfort and the result was a definite closure and cessation of all symptoms permanently.

Dr. Carl Beck:—Whether a cholecystotomy or cholecystectomy should be done will certainly never be decided by the pathologist or the ordinary surgeon, but by the man who has a chance to do not a dozen, but hundreds of such operations. But there is another factor in these cases to which I wish to call attention, and that is this: Dr. Ries has shown us something that we see more and more every day, and that is that the pathology of organs is not brought out any more by the pathologist in the postmortem room, but by the surgeon, who, during the operation, sees changes which the pathologist does not see at the postmortem. The surgeon should not throw away the gall bladders he removes, but examine them carefully afterward so that we may learn a little more about these conditions.

Dr. Ries (closing the discussion):—The discovery of these diverticula is not mine. I mentioned Luschka, and since then I published the paper to which Dr. Ochsner referred, and these observations have been confirmed by others. The operation of dissecting out the mucous membrane, as done by the Mayo, is incorrect, because it leaves the ends of these diverticula in the wall and may lead to the formation of mucous fistulas. Dr. Ochsner said that the men who do the largest number of operations would ultimately have to determine this question. These men do ectomies. The gall bladder is a convenient drainage tube, that is true, but it can be removed and you can still drain through the common duct. It is wrong to leave a diseased gall bladder, but I did not advise to remove all gall bladders.

As to whether only small gall bladders show these diverticula, I may say that one of the largest gall bladders I ever removed was full of them. I find these diverticula right along in large gall bladders. The small, shriveled gall bladders do not necessarily have to be removed. In severe inflammations the gall bladder should be removed, and precisely in cases of gangrene and ulceration of the gall bladders all authors agree that it should be removed. As to obliterating the mucous membrane by means of cauterizing substances, that is all wrong. How

can these substances get into the narrow diverticula and obliterate them? A human being does not need the gall bladder any more than he needs his appendix, but it is not necessary to remove the gall bladder unless it is likely to cause trouble.

CHICAGO MEDICAL AND CHICAGO SURGICAL SOCIETIES.

Joint Meeting.

A joint meeting of the Chicago Medical and Chicago Surgical Societies was held Jan. 8, 1908, with Dr. A. J. Ochsner, president of the Chicago Surgical Society, in the chair.

TUBERCULOSIS OF THE TONGUE.

Dr. William M. Harsha reported a case of "Tuberculosis of the Tongue" and exhibited the patient.

DISCUSSION.

Dr. Arthur D. Bevan said that in 1893 he saw a case very much similar to this. He thought it was a case of epithelioma of the tongue. The patient, however, had, as Dr. Harsha's case had, some tubercle bacilli in the sputum, and the diagnosis in that case was made by taking some scrapings from the lesion of the tongue and staining for the tubercle bacilli. He found the tubercle bacilli in the scrapings and made a diagnosis of tuberculosis of the tongue. The man had also a fairly advanced tuberculosis of the lungs. He referred briefly to a case in which the question of diagnosis was very important, and in which he had the same pathological process to deal with as in Dr. Harsha's case. The patient was a man of 50, with a lesion on the glans penis which, from macroscopic appearance, was apparently a typical epithelioma. He believed it was a typical epithelioma. Amputation was advised, a section of tissue was taken and examined, and much to his surprise and to the surprise of the men associated with him, they found it was a case of tuberculosis of the penis, resembling clinically very closely an epithelioma.

Dr. John B. Murphy congratulated Dr. Harsha on making the diagnosis before the operation. The case, as it presents itself, has all the classic forms of tuberculosis, viz., it was first a submucous tuberculosis from inoculation from a tooth, and that remained beneath the mucosa for a considerable time and the patient had an ulcer appearing on the surface, giving the ulcerative variety where the mucosa is destroyed, leaving a primary lesion and a superficial lesion, and each of the two succeeding ones in this case was in advance of that and of the ulcerative variety. The clinical course is always doubtful in tuberculosis of the tongue. It is as grave a lesion in itself as cancer of the tongue, and then we have added the original primary tubercular lesion. The prognosis is unfavorable even after the removal of as large a portion as we would ordinarily remove in a case of epithelioma of the tongue. It requires the excision of a larger portion than in excision for carcinoma to feel that the patient is free from the secondary return *in loco*.

Dr. William Allen Pusey reported a case of tuberculosis of the mucous membrane of the mouth and tongue which was recently under the joint treatment of Dr. Thomas L. Gilmer and himself, the diagnosis of tuberculosis being made by Dr. Gilmer before he saw the case.

Dr. J. L. McArthur asked as to whether an exquisite tenderness and painfulness of this lesion existed such as exists in lesions of that kind, of which he has had personal cognizance. In this case the tenderness and suffering from the lesion were to be likened to ulceration which comes from an x-ray burn—painful to the slightest touch. He had occasion to make a diagnosis and remove a growth of this kind from a patient of Dr. Frank Carey's fifteen years ago, and the diagnosis was made by means of the microscope. He thinks practically we have three things to differentiate in ulceration of this type. It is either epithelioma, tuberculosis or syphilis. He does not feel like agreeing with the extremely grave

prognosis that Dr. Murphy gives in regard to tuberculosis of the tongue. He thinks that the radical removal will offer a far greater hope of recovery than in cases of carcinoma.

Dr. Harsha, in closing the discussion, said it is a difficult matter to make a diagnosis from scrapings or from sections taken from the nodular or submucous type; that the tubercle bacilli are not commonly found in the tissue, and that the best way to make the diagnosis is to cut out a section from the border of the ulcer. In answer to Dr. McArthur, he said that neither the ulcers nor the primary nodules were at all painful.

THE PROPHYLACTIC USE OF FILIGREE IN INFECTED WOUNDS OF THE ABDOMINAL WALL.

Dr. Willard Bartlett, of St. Louis, Mo., read a paper (by invitation) on this subject.

He reported thirty-two cases in which he had used filigree, and described the technic of its use. His experience with thirty-six cases seems to him to prove that it will heal in a pus wound, and he has shown it to be true in five instances, as well as in an equal number where a clean wound became infected after the implantation of such a contrivance.

DISCUSSION.

Dr. D. A. K. Steele thinks it is possible to implant a filigree in an infected wound of the abdominal wall and have its silver strands become a part of the scar tissue, prevent hernia, and cause no local irritation, even though in the lapse of time the original network may become broken or separated into fragments. He has always regarded the permanent introduction of non-absorbable material, such as silver wire, iron wire, silk or silkworm gut, into the living tissues as objectionable on account of the frequent necessity for its removal later on by reason of irritation, infection or discomfort to the patient. Many times he has been called on to remove buried loops of wire or silk that have produced distressing symptoms. He prefers autoplasmic methods, and his belief is that in cases like those described by Dr. Bartlett it would be perfectly feasible to bring the muscular or aponeurotic structures in close apposition by the use of herring-bone suture of chromicized catgut or kangaroo tendon, which will give equally as good permanent results.

Dr. Alexander Hugh Ferguson has met with no case which he has not been able to handle by plastic procedures. There have been some cases in which he has refused to operate which might be suitable for the filigree. He thinks the author makes a bold statement when he advises the filigree as a prophylactic in suppurating wounds of the abdominal wall. In large gaping wounds it is much easier to insert the filigree than to effect approximation by well-known surgical methods. Its ease of application will induce many men to try it who would not undertake a plastic operation. The author's statistics are in favor of it, although he thinks sufficient time has not elapsed to prove this. The first disadvantage of the filigree is that it is a foreign body; second, its instability in the tissues; third, it is doubtful whether it is a prophylactic in such cases against hernia.

Dr. M. L. Harris has had no experience in implanting silver wire filigrees, but he has had some experience in taking them out. His first case was a patient operated on several times, primarily for appendicitis, and then operation was undertaken subsequently to close a ventral hernia, and finally a wire mattress of filigree was implanted in the abdominal wall. It healed in nicely, but after a time it gave the patient so much trouble and so much pain that he insisted on its removal. The wire had broken into small pieces, each one of which furnished one or two ends which were sticking in the tissues.

Dr. E. Wyllys Andrews said that if he has a clear picture of Dr. Bartlett's paper, it is simply this: That over a row of pegs he constructs a filigree by first darning artificially, and then a natural kind of network is constructed which is

able to stand alone and hold in shape. Here we have a principle analogous to that of heteroplasty, as seen in the Moorhof bone plug. With the wire network granulation tissue and connective tissue fill out the space or cavity, and he thinks there can hardly be any question as to the practicability of this framework.

HUMAN GLANDERS.

Drs. A. D. Bevan and Walter Hamburger reported three cases of glanders occurring in the human subject.

DISCUSSION.

Dr. Maximilian Herzog mentioned two cases which he saw in Manila that were diagnosed as smallpox. Commonly, the disease in the human being simulates either smallpox, pyemia, erysipelas or syphilis. The agglutination test is not reliable. The biologic test is reliable and simple, and can be made in a few days.

Dr. F. Robert Zeit reported two more cases of glanders occurring in Chicago, one of which he saw himself, and the other having occurred in the practice of Dr. Bayard Holmes.

Dr. Adolph Gehrmann mentioned a still earlier case of glanders in the human subject than the one related by Dr. Zeit. This was demonstrated before the society some fifteen years ago. This case also occurred in the practice of Dr. Holmes. He mentioned an interesting report from the Royal Victoria Hospital in Montreal of a case of glanders in a man who lived for about seven years, having exacerbations now and then, but who finally died of a generalized infection.

Dr. D. A. K. Steele reported cases and exhibited the following specimens: (a) Stab Wound of Fetus in Utero at Six and a Half Months; Delivery of Live Child at Full Term. (b) Inversion of Uterus During Labor, with Subsequent Gangrene. (c) Fibroma of Broad Ligament.

MADISON COUNTY.

The Madison County Medical Society met at the Lutheran Hospital at Granite City, on June 5, 1908, at 2 p. m., with President Waldo Fisher in the chair. Members present: Drs. Barnsback, H. R. Lemen, Hastings, Luster, Scott, Kiser, Harlan, Tully, King and J. H. Fiegenbaum. Visitors: Drs. Kaeser, Gibberson, Ingham, Paul Howe and Emma Howe. On motion the courtesy of the society was extended to visiting physicians. Paper was read by Dr. R. D. Luster on "Diagnostic Value of X-Ray in Fractures and Dislocations," which was discussed by Drs. Lemen, Kiser, Ingham, Gibberson, Howe, Kaeser and Howe, Dr. Luster closing the discussion, showing plates revealing fractures and dislocations by x-ray, which was of great interest to the members. Dr. C. R. Kiser presented a paper, "Bullet Wound of Brain with Recovery," which was discussed by Drs. Barnsback, Lemen and Fisher. Discussion closed by Dr. Kiser, showing x-ray plates of the course taken by the bullet. On request of President Fisher it was moved and carried to refer the applications of Drs. Porter and Gibberson to the Board of Censors. The president appointed permanent auditing committee consisting of Drs. Luster, H. R. Lemen and Barnsback. Applications for membership of Drs. Paul Howe and Emma Howe of Granite City were referred to Board of Censors to report at our next regular meeting. On motion it was ordered that we meet in Alton on the first Friday in September, 1908. On motion adjourned.

J. H. FIEGENBAUM, Secretary Pro Tem.

MARSHALL-PUTNAM COUNTY MEDICAL SOCIETY.

In compliance with the previously expressed preference of a majority of the physicians of Marshall and Putnam counties, a convention of such physicians was called to meet at Henry, Ill., on May 12, 1908, by Dr. C. C. Hunt, of Dixon, counselor for the second district. Pursuant to such call there assembled in the parlors of the Camys House in that city the following members of the local profession:

Drs. S. O. Hendrick, J. A. Swem, E. A. Hall, of Henry; C. H. Keemp, of Lacon; R. G. Dakin, W. A. Simmons, Magnolia; H. B. Royerson, Granville; W. O. Ensign, Rutland; E. F. Peterson, P. S. Mabry, Varna, and T. C. Cogsdall, of Henry; also as visitors Drs. C. C. Hunt, Dixon; E. W. Weis, Ottawa; J. P. Percy, Galesburg; J. W. Pettit, Ottawa; Wm. Schoenneshoefer, Lostant, and Frank Allport, of Chicago. Dr. Hunt, councilor for the second district, called the convention to order at 2 o'clock p. m., and briefly but clearly stated the objects of the meeting and asked for the selection of temporary officers. Dr. W. A. Simmons, of Magnolia, was then chosen chairman and Dr. E. A. Hall, of Henry, secretary of the convention.

A program, previously arranged and announced by the councilor and carried out, was as follows: Medical Organization in Marshall and Putnam Counties, a brief historical sketch by Dr. W. O. Ensign, of Rutland, was read. Following this the question of a joint and united society for the two counties named was then affirmed and a combined organization effected as the Marshall-Putnam County Medical Society, with permanent officers for the current year as follows: President, Dr. W. A. Simmons, Magnolia; vice-president, Dr. E. A. Hall, Henry; secretary-treasurer, Dr. W. O. Ensign, Putnam; delegate, Dr. R. G. Dakin, Magnolia; alternate delegate, Dr. S. O. Hendrick, Henry. The first three named to act as a board of censors until further arrangements should be made.

The program was then continued as further arranged, Dr. R. G. Dakin, of Magnolia, presenting an interesting paper entitled Report of a Case of Erysipelas, which provoked much discussion. Dr. Frank Allport, of Chicago, considered The Commoner Forms of Eyeball Injuries* in a very practical and interesting paper, which was highly appreciated and for which he received the unanimous thanks of those present. Dr. Ensign next presented the subject of The Importance, Methods and Results of Medical Organizations. Dr. Percy having to return home, his paper on The Physician as an Individual in Relation to His County Society was unavoidably omitted, but it is hoped was only briefly postponed. After the consideration of some further matters of business, the society adjourned to meet in semi-annual meeting at Varna on the second Tuesday in October next. It is reasonably anticipated that this organization, so auspiciously begun, will enlist the cordial interest and cooperation of the entire profession of the two counties it represents:

ROCK ISLAND COUNTY.

The regular meeting of the Rock Island County Medical Society was held at the Manufacturers' Hotel, Moline, June 9, at 8 p. m. Routine business was disposed of and the following names were presented for membership: Drs. A. T. Leopold, Emma T. Cooper, Henry E. Beck, Perry H. Wessel, all of Moline; Dr. J. H. Ellingworth of Watertown; Dr. A. C. Hansen, Silver. A paper on the Pathology and Etiology of Enteritis in Children was read by Dr. E. M. Minnick of Moline and discussed by Drs. R. C. Meyer of Moline, Asay of Rock Island, and Dr. Minnick. Dr. Louis Ostrom of Rock Island demonstrated a pair of anterior cutting forceps and a universal self-retaining nasal speculum which he had devised. A lunch and social hour was enjoyed after the program.

THE ÆSCULAPIAN SOCIETY OF THE WABASH VALLEY.

FOUNDED 1846. MEMBERSHIP 300. REGULAR MEETINGS HELD IN MAY AND OCTOBER.

OFFICERS:

J. C. Epperson, Kansas Ill. President.
 J. H. Weinstein, Terre Haute, Ind. Vice-President.
 H. N. Rafferty, Robinson, Ill. Secretary-Treasurer.
 Censors—J. T. Montgomery, Charleston, Ill.; W. E. Bell, Terre Haute, Ind.; Mark Rowe, Paris, Ill.; C. E. Price, Robinson, Ill.; and T. E. Walton, Danville, Ill.

At the sixty-first semi-annual meeting, held at Charleston, Ill., May 28, 1908, "Practical School Hygiene" was treated by Dr. O. W. Ferguson, Mattoon, Ill., in

*For text of paper see page 206.

which the author said that the public schools offered a wide field for the exercise of preventive medicine, first, in the proper construction and arrangement of the building; second, in securing the services of a neat and clean janitor; and third, in the proper recognition of the congenital and acquired defects in sight and hearing, and in the early detection of contagious and infectious disorders common to school children. In presenting a paper on "Sanitation," Dr. R. R. Trueblood of Lawrenceville, Ill., said: "In the present age it is not so much what the practitioner of medicine is able to cure, as what he is able to prevent, that makes him a benefactor." He spoke of the rôle of the mosquito and house fly in the spread of disease, of the dangers from the infected drinking-cup, kissing, the common towel, and promiscuous expectoration. Besides sunlight and fresh air, there were four disinfectants worth mentioning, viz., steam, formaldehyd, sulphur and lime. Like the preceding speaker, he emphasized the importance of the proper location, ventilation and sewerage of our public school buildings. He said in closing: "Perfect hygiene is to the general practitioner what asepsis is to the modern surgeon, and the nearer the person individually, or the public at large, observe the laws of hygiene, so much less will be the need of medical interference."

In a paper on "Sanitation by Cremation," Dr. James L. Reat started out with the basic principle that a supply of air, water and combustible material was necessary for the maintenance of all animal life. The laws of hygiene demand that the air we breathe and the water we drink be pure, and inhumation seriously interferes with these very necessary conditions. Science has shown that burning simply does quickly and without the attendant dangers, what putrefaction accomplishes after a long time. The public welfare increases in importance as populations grow, and if the practical application of the laws of hygiene can be better secured by cremation than by inhumation, as has been abundantly proven, then the former method should prevail.

"When Shall We Remove the Ovaries" was the title of a paper by Dr. E. L. Larkins of Terre Haute, Ind. He said this question was of great importance to the woman, of great scientific and practical interest to the physician, and of vital interest to the human race. He thought the ovaries should not be removed when pain was the only symptom, nor for simple prolapse, nor when there were pathological changes in the uterus demanding hysterectomy, with normal ovaries. He also condemned ovariectomy for the attempted relief of hysteria or hystero-epilepsy, saying that these unfortunate women were usually made worse rather than benefited by the procedure. He advocated the early removal of all ovaries the seat of incurable inflammatory changes, or of new growths, both benign and malignant. This question is of interest to physicians because of the physical and psychical effects which the normal and abnormal ovaries exercise over the bodily and mental life of women. The unsexed woman is often to be pitied, knowing she can not bear children if she would. The body and face lose many feminine characteristics, becoming stout and coarse. Deprived of the power of carrying out the purpose for which she was created, she often becomes the prey of a nervous unrest from an intermittent melancholia to a violent delusional insanity.

Dr. H. J. Pierce of Cloverland, Ind., reported on the use of antitoxin in 38 cases as a curative agency, and its use for the purpose of immunizing in 42 cases, all within a period of two years. The maximum dosage was 58,000 units, given to a child 2½ years old, in which the membrane involved both tonsils, tongue, roof of mouth, uvula and nose. In this series of cases there were no deaths, and in only a few instances such after-symptoms as rashes, joint-pains, etc.

Dr. John Marten, Tolona, Ill., reported a case of "Cancerum Oris" in a girl of 5 years, following chicken-pox, measles and typhoid fever, in the order named. Fortunately a line of demarcation formed, the slough separated, and the patient recovered on supportive and cleansing treatment.

In a paper entitled "Cholecystectomy, the Operation of Choice," Dr. W. E. Bell of Terre Haute, Ind., strongly advocated the removal of the gall bladder in preference to its incision and drainage. He supported this contention by the statements that the gall bladder was without function, that the bile itself probably has no part to play in the human economy, and that the complete removal of the

organ was the more surgical procedure, just as appendectomy was preferable to leaving behind an appendix which may later give rise to trouble. He concluded with the statement that in the same class of cases the mortality in cholecystectomy would be as low or lower than if the organ were simply drained, while the post-operative period was much more comfortable if the former operation was done.

Dr. G. W. Fuller of Paris, Ill., reported a "Case of Diverticulitis," being in detail a left-sided abdominal inflammation in the region of the sigmoid, apparently originating from a highly inflamed diverticulum. This diverticulum was about seven inches in length, and was at first thought to be a transposed appendix, but investigation showed that it was attached to the sigmoid and to the parietal peritoneum. This was ligated and removed, the wound closed, and the patient made a slow recovery.

Dr. S. C. Glidden of Danville, Ill., reported "Two Unusual Surgical Cases." The first was a woman, 22 years of age, upon whom a double ovariectomy was done. On the ninth day following, the patient jumped from the window to the ground below, a distance of thirty feet. Examination showed a resulting fracture of the bodies of the eighth and ninth dorsal vertebræ, with loss of plantar reflex, paralysis of right leg, bowels and bladder. The abdominal wound was partially separated, as the skin sutures had been removed just the day before. The fractured vertebræ were reduced, a plaster jacket placed on the patient, and she made a good recovery.

The second case was one of "Traumatic Diaphragmatic Hernia," in a man of 30 years, who had a stab-wound about two and one-half inches long on the left side of the chest, from the seventh to the ninth ribs, and just external to the nipple line. The wound had been closed before Dr. Glidden saw the patient, and was let alone. The patient complained of pain over the epigastric region and was nauseated. These symptoms increased, the pulse became thready, and the abdomen scaphoid. Death ensued on the ninth day after the injury, the temperature standing as low as 94 F. and 95 F. for two days before. Postmortem examination showed the knife had made a cut of one and one-half inches through the diaphragm, through which the entire stomach had passed into the thorax.

Dr. C. F. Newcomb of Champaign, Ill., read a paper on "The Treatment of Ankle-Sprain by the Adhesive-Strapping Method." He said the three popular methods of treating these sprains were: (1) The plaster dressing applied at once; (2) the use of hot applications and elevation, with the plaster applied later; (3) the use of hot timentations, massage and passive motion. He thought the method of strapping by adhesive, if properly applied, combined all of the good points of the three methods above mentioned, with many advantages over either. He described the manner of application, stating that the patient could usually get around within a few hours, and with comfort.

The following applicants were elected to membership: Drs. O. E. Fink, Terre Haute, Ind.; R. D. Cruikshank and F. A. Baumgart, Danville, Ill.; T. A. Bryan, Lerna, Ill.; J. F. Hilgenberg, Pesotum, Ill.; H. L. Smith, Ivesdale, Ill.; J. G. Baker, Mattoon, Ill.; and C. P. Gore, Lawrenceville, Ill. The following applications for membership were received, to be voted on at the next annual meeting: Drs. W. J. Carter, E. F. Dixon, E. Summers and A. T. Summers, Mattoon, Ill.; T. C. Lonks, Prairieton, Ind.; G. H. Hunt and Mott Arnold, Paris, Ill.; D. N. Canerer, Chrisman, Ill.; J. P. Prestley, Newton, Ill.; A. Lyman Lowe, Robinson, Ill.; T. A. Dicks, Broadlands, Ill.; and Robt. S. McCaughey, Hoopston, Ill.

At 7:30 p. m. the society adjourned to the dining-room of the Laws House, where an elegant banquet was served by the Coles County Medical Society.

UNION COUNTY.

The Union County Medical Society held a special meeting in the Presbyterian Church at Colden, Ill., on June 24. Rev. Charles McClure, pastor of the church, opened the meeting with prayer and gave some well-chosen remarks relative to the present attitude of the medical profession toward the church. The society enjoyed two fine selections of music rendered by a ladies quartette of Colden. The papers of Dr. E. V. Hale on "Some Suggestions to the Society" and by Dr. L. J. May on "Cholera Infantum" elicited quite a discussion. Several visitors were present. Refreshments, ice cream and cake, were served by the ladies on the lawn. This society is growing not only in numbers, but much interest is being manifested by its members.

NEWS OF THE STATE.

PERSONAL.

Dr. E. C. Dudley, Chicago, and son sailed for Havre July 18.

Dr. John B. Murphy and family, of Chicago, left for Europe July 12.

Dr. and Mrs. Arthur H. Brumback, Chicago, left for Europe early in July.

Dr. James A. Rutledge, Elgin, has been made a member of the board of directors of Modern Woodmen of America.

Drs. Alfred D. Kohn and Alexander L. Blackwood, of Chicago, have been appointed members of the board of education.

Dr. S. Walter Ransom has been appointed associate professor of anatomy in the Northwestern University Medical School, Chicago.

At the annual meeting of the South Side Medical Society, Chicago, June 19, Dr. Edwin B. Tuteur was elected president and Dr. F. Gurney secretary.

Drs. William A. Evans and George W. Webster, Chicago, have been elected members of the executive committee of the Chicago local advisory committee of the American Health League.

Dr. Don A. Vanderhoof, who has been abroad during the last year, has now returned and is located in the William Brown Building, Rockford, and is now associated with Horace M. Starkey, M.D., in eye, ear, nose and throat work.

NEWS.

The twenty-second season of the *Daily News* Fresh Air Fund Sanitarium, Lincoln Park, Chicago, began June 29.

The finance committee of the City Council has raised the salary of the city physician, Dr. L. Blake Baldwin, from \$3,000 to \$4,000.

Dr. Roy C. Richards, Hopedale, accused of violating the "dram shop act" by prescribing beer for a patient, is said to have pleaded guilty of technical violation of the law and to have been fined \$20 and costs.

Jackson Park Sanitarium, Chicago, was opened for the season June 27. Addresses were made by Dr. W. A. Evans, Commissioner of Health, Dr. Alfred C. Cotton, superintendent of the sanitarium, and others.

Mrs. L. Brunswick, Mrs. F. Kantz, Hanna K. Blomberg, and H. H. Hill, charged with practicing medicine without licenses, are said to have been found guilty and fined \$100 and costs each. None of the defendants appeared in court.

A fire on June 21, originating in the clinical laboratory of the College of Physicians and Surgeons, Chicago, caused considerable alarm to patients in the hospitals near by, although no one was injured. The total loss was about \$3,000.

The Northwestern University Medical School, Chicago, is about to erect a dispensary on property on Calumet Avenue, north of Mercy Hospital, which was acquired by Dr. John B. Murphy for the institution and was conveyed by him to the university, June 26, for a consideration of \$7,801.

The fourth consecutive season of the *Tribune* Summer Charities at Algonquin was inaugurated the first week in June. Building operations on the second building of the group have already been commenced. This building is to be a central pavilion, containing a dining hall, diet kitchen, laundry, general offices, etc.

Iroquois Memorial Emergency Station, No. 1, is to be opened at 87 Market Street, Chicago, by the Iroquois Memorial Association. The association is prepared to spend \$25,000 in equipping the building, and it will be provided with everything deemed necessary. The first floor is to be an ambulance station, the second a dispensary, and on the third floor will be the operating room and beds for patients.

Ernest P. Bicknell, Chicago, who has recently been appointed national director of the American National Red Cross Society, served for five years as secretary of the Indiana State Board of Charities, during which time he brought about several important reforms, both in the charity work and in the penal system of the state, introducing the indeterminate sentence and the parole. Mr. Bicknell also had charge of the Chicago Bureau of Charities for some years, taking an active part in the investigations of the county hospital and serving as a member of the present commission charged with the building of a new Cook County infirmary and tuberculosis hospital. In the relief work at San Francisco, Mr. Bicknell showed distinguished ability. He went to represent the Chicago relief committee, which contributed \$700,000 to the fund used for relief work, and it was while there that he evolved the idea of making charity organizations generally auxiliary members of the American National Red Cross Society, with the view of giving a nucleus of trained relief workers who could be called upon for immediate service in case of emergencies. It is announced that this excellent plan will be put in effect at once.

MEDICAL SOCIETY NOTES.

The physicians of LaSalle and Peru, on June 23, met and organized the Twin City Medical Society, a branch of the LaSalle County Medical Society. The following officers were elected: President, Dr. B. J. Nauman, Peru, and secretary, Dr. Frederick A. Guthrie, LaSalle.

The next meeting of the Englewood Branch of the Chicago Medical Society will be held at 9 p. m. Aug. 4, 1908, at Englewood Hospital, Sixtieth and Green Streets. Program: Toxemias in Pregnancy, (a) Clinical Types, J. G. Campbell; (b) Renal Insufficiency, A. G. Bosler; (c) Eclampsia, G. J. Hagens. Everybody welcome. Messages may be sent to Wentworth 342.

The Stephenson County Medical Society held its annual meeting, July 16, and elected the following officers: President, Dr. A. H. Kober, McConnell; Vice-President and Treasurer, Dr. D. C. L. Mease, Freeport; Secretary, Dr. J. Sheldon Clark, Freeport; Censor, Dr. Smith C. Thompson, Cedarville; Delegate, Dr. W. J. Rideout; Alternate, Dr. D. C. L. Mease.

The officers of the Englewood Branch of the Chicago Medical Society entertained Dr. James Wiley Pettit, president of the Illinois State Medical Society, at a dinner at the South Shore Country Club on the occasion of his visit to the branch at its first meeting of its fiscal year, July 7, 1908. Dr. Pettit was met at the train by a large committee and conveyed to the club by autos. Covers were laid for fourteen, and a most delightful course dinner, gotten up in the club's usual manner, was enjoyed by all present. Dr. Pettit, in his well-chosen remarks, assured those present that he was "with them" in everything that was for the best interests of the society and for its upbuilding, and that it was his intention to take the time to visit every county and district society in the state. He said that he expected this would take some 100 to 125 days at least, but that he was glad to have the opportunity of doing at least that much toward the upbuilding and better organization of the society.

After a ride through the park system the party repaired to the Englewood Hospital, the place of meeting. A large and enthusiastic gathering was waiting and the Doctor was given a very cordial reception. After all had met the visitor of the evening the president, Dr. Carl Langer, called the meeting to order by introducing Dr. Pettit to the society. After a few remarks expressing his very great pleasure at being present, Dr. Pettit again assured the society of his interest in the local society and that he hoped to be able to visit all during his term of office.

The regular program of the evening was then announced as follows: Dr. A. G. Shortle, late of the Englewood Branch, now of Albuquerque, N. M., "Climate as a Factor in the Treatment of Tuberculosis"; Dr. J. W. Pettit, "The Modern Treatment of Tuberculosis." Dr. E. C. Morton was called upon to open the discussion, which was followed by a general discussion by a large number of those present. The society then adjourned after passing resolutions thanking the essayists of the evening and Dr. Pettit for his kind visit to the society.

PUBLIC HEALTH.

Elgin reports 18 cases of smallpox and eight houses under quarantine. Four cases of smallpox are reported at the Rock Island County Infirmary.

Joliet still has 9 cases of smallpox; seven of the patients are in the Isolation Hospital and all are on the road to recovery.

There have been three additional cases of smallpox discovered at the Rock Island County Farm, but none of the patients is seriously ill.

At the Illinois State Board of Health examination, held in Chicago, June 24 and 25, there were 265 applicants, making the largest class on record to take the examination.

The State Board of Health, through its secretary, Dr. James A. Egan, Springfield, is advertising for sealed proposals for diphtheria anti-toxin for free distribution by the board. The legislature has appropriated \$30,000 for this purpose.

On June 25 a hundred physicians, under the direction of Drs. Heman Spaulding and I. Donaldson Rawlings of the Department of Health of Chicago made a house-to-house inspection of the territory lying between State and LaSalle and Sixteenth and Sixty-fourth Streets. Every house was visited and the tenants were compelled to be vaccinated unless they could show satisfactory scars.

Dr. J. A. Egan, secretary of the Illinois State Board of Health, has announced for the information of physicians and health officers that in 1905 the General Assembly made provision for the care and treatment of poor persons duly certified by regular physicians to have been bitten by rabid animals, or otherwise put in danger of infection from hydrophobia, and that such persons unable to pay for treatment themselves will be cared for at the expense of the state at the Pasteur Institute, 228 Dearborn Avenue, Chicago, the institution selected by the Illinois State Board of Health.

Mortality of Chicago During the First Half of 1908.—According to the statistics of the Department of Health, 1,998 fewer people died during the first six months of 1908 than during the corresponding period of last year. The diseases in which the greatest improvements in the mortality rate is shown are pneumonia and pulmonary tuberculosis; the actual decrease in the number of deaths from pneumonia is 949, from tuberculosis is 174. On the other hand, deaths from diarrheal diseases in children have increased, especially in children under 1 year, the increase over last year being 183. June had the very low general rate of 11.77 per thousand of population. This is 6.5 per cent. lower than the ten-year average for June and 13.4 lower than June, 1907. In the last fifty years there have been but two Junes with a lower rate. The total deaths reported during the month—2,095—were 348 fewer than the preceding month and 260 less than the returns of June, 1907. Of the diseases which show the greatest reduction, pneumonia leads, with 103 fewer deaths than the preceding month and 133 fewer than the corresponding month of last year. There were 24 fewer deaths from consumption than in the preceding month and 12 fewer than the compared period of 1907. The reduction in contagious diseases similarly compared was 27 and 42. A marked increase is noted in deaths from diarrheal diseases. The 153 deaths reported during the month by 22 and the corresponding month of last year by 38.

MARRIAGES.

FOXROSE LAWSON, M.D., Sullivan, Ill., to Miss Helen Greer, of Gays, Ill., June 10.

JAMES F. HILGENBERG, M.D., to Miss Grace Mix, both of Pesotum, Ill., June 17.

HARRY V. KITZMILLER, M.D., to Miss Eva Lee, both of Smithshire, Ill., June 23.

J. U. CARTER, M.D., Mattoon, Ill., to Miss Bessie Lockie, of Gault, Ont., June 24.

WALLACE M. BURROUGHS, M.D., to Miss May A. Quilter, both of Chicago, June 27.

C. M. JACK, M.D., of Niantic, Ill., to Miss Charlot Nelson, Bloomington, Ill., June 18.

RALPH MILLS, M.D., Decatur, Ill., to Miss Ethel Bumgardner, of McNabb, Ill., June 1.

OLANDER E. WALD, M.D., Chicago, to Miss May Augustine, of West Point, Ind., June 17.

C. ROY JOHNSTON, M.D., of Decatur, Ill., to Miss June Riggs, of Saybrook, Ill., June 24.

ALBERT MICHAEL WICKSTROM, M.D., to Emma Rūhi-Maki, M.D., both of Chicago, June 10.

HUGH T. MORRISON, M.D., to Miss Mary Logan Coleman, both of Springfield, Ill., June 23.

THOMAS HOUSTON D. GRIFFITTS, M.D., Springfield, Ill., to Miss Elizabeth Anne Glynn, of Cairo, Ill., June 30.

JAMES MALCOLM MILLER, M.D., Villa Grove, Ill., to Miss Inez A. Whitworth, of St. Louis, Mo., at St. Charles, Mo., recently.

DEATHS.

ALEXANDER E. BOWMAN, M.D. (Years of Praetice, Ill.), of White Hall; died at his home in that city, June 19, from senile debility, aged 91.

FRANK O. CULTER, M.D. Pulte Medical College, Cincinnati, 1888; of Gibson City, Ill.; died in Chicago, June 26, after an operation for gallstones, aged 48.

JAMES A. CONVERSE, M.D. United State Medical College, New York, 1880; of Danville, Ill.; died at his home in that city, June 28, after a short illness, aged 66.

GEORGE K. TILLOTSON, M.D. Rush Medical College, Chicago, 1876; of Chicago; died in Lakeside Hospital, July 2, from septicemia, after an illness of two weeks, aged 58.

HENRY GANTER, M.D. University of Würzburg, Germany, 1875; died at his home in Floraville, Ill., from cerebral hemorrhage, June 24, after an illness of three days, aged 59.

JAMES A. LYDSTON, M.D. Rush Medical College, Chicago, 1885; formerly professor of chemistry in the College of Physicians and Surgeons;

died suddenly at his home in Chicago, July 6, from the effects of the heat, aged 47.

JOHN RANDOLPH WEBSTER, M.D. Rush Medical College, Chicago, 1858; Jefferson Medical College, Philadelphia, 1864; a member of the American and Military Tract medical associations, who recently celebrated his fiftieth anniversary as a practicing physician of Monmouth, Ill.; died at his home in that city, June 19, aged 72.

OLIVER L. DANIEL, M.D. Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1896; a member of the American Medical Association; surgeon to St. Andrews' Hospital, Murphysboro, Ill.; local surgeon to the Big Muddy Coal and Iron Company, and one of the most prominent practitioners of southern Illinois; died at his home, June 21, aged 43.

FRANK HUGH MONTGOMERY, M.D. Rush Medical College, Chicago, 1888; associate professor of skin and genitourinary diseases, Rush Medical College; attending dermatologist to St. Elizabeth's, St. Anthony de Padua and Presbyterian hospitals; a member of the consulting staff of Oak Park Hospital; a member of the American Medical Association, American Dermatological Association, Congress of American Physicians and Surgeons, Illinois State Medical Society, and of Chicago Medical, Pathological and Medicolegal societies; co-author of "A Practical Treatise on Diseases of the Skin," "A Manual of Syphilis and the Venereal Diseases," and other works on these subjects; who had achieved national prominence as an authority in his specialty; was accidentally drowned while boating on White Lake, Michigan, July 14, aged 46.

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ORIGINAL ARTICLES

DIET IN TUBERCULOSIS.*

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CHICAGO.

Fresh air, diet, rest and exercise, the essential contributory factors in the treatment of tuberculosis, are so intimately associated, one dependent on the other, that a consideration of one must necessarily, to a certain extent, concern the others. Owing, however, to our increased knowledge and consequent change of view in the treatment of this disease, it is now possible to more accurately estimate the importance and influence of the various factors concerned. As a result a prognosis, which formerly was regarded as bad, has gradually given way to one far more encouraging and hopeful.

Some twenty-five centuries ago Hippocrates wrote: "The greatest and most dangerous disease and the one that proved fatal to the greatest number was the consumption." In his aphorisms on prognosis (Nos. 11, 12, 13 and 14) in this disease the seriousness and unfavorable outcome is clear and distinct. Many of the older authors as Celsus, Pliny and Galen, as well as many in the following centuries, held similar opinions. All progress was effectually blocked during the Dark Ages, as the existence of epidemics and disease was considered due to the visitations of an angry God, and any attempt at investigation and resistance was held by the existing theology as opposing the will of God and as sacrilegious. This condition continued until the dawn of the Renaissance, when postmortems and dissections were permitted, which eventually led to the formation of our present knowledge. Latham gives credit to a Scotch physician, 1747, for first expressing in unmistakable terms a more favorable prognosis and "supported by the incontestable evidences of the results he had obtained, that hygiene and diet are most important factors in the treatment of tuberculosis, and that climate and medicine are only

* Read in the Symposium on Therapeutics at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

to be considered as more or less precious adjuvants." While this quite closely approximates the prevailing opinion of the present day, it required years of study and observation to determine its accuracy. We find, for instance, Sir Thomas Young, in 1815, said: "Even with the utmost powers of art perhaps not more than one in a hundred will be found curable."

Hector Mackenzie quotes Dr. C. J. B. Williams as follows: "My general recollection of the histories of the developed disease at that time, 1830-1840, is that of distressing tragedies, in which no means used seemed to have any power to arrest the malady, and life was rarely prolonged beyond the limit of two years assigned by Laennec and Louis, as the average duration of life of the consumptive." He goes on further to say: "In the next period of ten years, 1840-1850, a marked improvement took place in the results of treatment, apparently in connection with the allowance of a more liberal diet and the habitual use of mild alterative tonics."

About this time George Bodington, 1840, wrote an essay "On the Cure of Pulmonary Consumption on Principles Natural, Rational and Successful," in which he emphasized the importance of a generous diet, fresh air, day and night, "together with systematic arrangements with regard to exercise and general treatment, and the watchfulness daily—nay, almost hourly—over a patient by a medical superintendent." His statements were based upon personal observation extending over several years, but his views were severely criticised and the abusive treatment rendered him is hardly conceivable in the light of recent development. He was considered demented, his patients driven from him, and by the irony of fate his hospital was converted into an asylum for the insane. While to Bodington must be given the credit of the first attempt at establishing a tuberculosis hospital, Hermann Brehmer must be considered as the real founder of our modern sanatorium treatment of tuberculosis. In 1859, through the assistance of his friends, Humboldt and Schönlein, he was able to open his sanatorium. Then followed years of opposition, criticism and abuse, but, self-content with his own convictions, he obstinately persevered, and in 1886 published the result of his work, demonstrating to the world what might be done in the treatment of tuberculosis. While some of his ideas have been found wanting, in the main they were correct, as the favorable reports from the numerous tuberculosis sanatoria and camps attest.

During these years of clinical observation, pathology and bacteriology were not idle. Laennec, who died from consumption in 1826, determined that phthisis resulted from the formation of tubercles in the lungs. Carswell wrote in 1836: "Pathological anatomy has never afforded stronger evidence of the curability of a disease than in the case of phthisis." This finding has since been amply verified by numerous observers. The determination of the essential etiology was made possible by Pasteur's labors, by the inoculation experiments of Klenke, 1843, and Villemin, 1865, which finally resulted in Koch's great discovery, 1882, of the tubercle bacillus. Thus we can trace the slow but gradual evolution from

a hopeless to a highly favorable and curable disease and as a result of proper hygienic conditions, diet, climate and medicine. Of the relative importance of these factors, it is now pretty generally agreed there is no specific drug or laboratory product; that a special or particular climate is not essential, but that hygiene and diet are most important.

R. W. Phillips, in this connection, has remarked: "The selection of a suitable dietary for the patient suffering from pulmonary tuberculosis is of the first moment. In no disease is it more true that the dietary must be selected with a view to the individual need of the patient. In no disease is it more certain that benefit will accrue according as care is expended in the selection. Nowhere is ignorance or carelessness more likely to prove disastrous, both immediately and ultimately, to the patient." Flick voices the same opinion when he says: "Tuberculosis can be treated anywhere. Climate has practically nothing to do with the matter. . . . All that is necessary is life in the open air, proper food, well-regulated and carefully-disciplined conduct, and, in more advanced cases, properly directed rest and exercise." Dettweiler was once asked if he used drugs much in the treatment of this disease, and in reply he pointed to the kitchen and said: "There is my pharmacy; there is my chemist shop."

In a discussion at a meeting of this society, J. W. Pettit made these remarks: ". . . but as between good food properly prepared and a fairly good air I would say that good food is more important. I would rather undertake to treat a case of tuberculosis in the heart of Chicago, where the air is bad, with good food, than to put out anywhere on a prairie or plains of Illinois, give him all the fresh air possible, and cheapen the food or have it prepared unscientifically. I believe that is not too strong a statement to make."

In reviewing the different dietaries that have been proposed, used or are now employed, one is confused by the conflicting statements. It is hardly to be presumed that the opinions of earlier writers, before the real nature of the disease, the food values and amounts required were known, could have the accuracy and weight of the present day. A discussion of the various diets is not necessary or is it desirable, but a consideration of the governing principles is far more important, for, no matter what the diet, perfect or imperfect, these must always remain the same. Physiology, chemistry and more recently studies in metabolism have succeeded in elucidating this subject and correcting many false suppositions. To better appreciate the conditions present and the objects to be accomplished in the feeding of tuberculous patients, a proper conception of the normal is necessary.

Physiologists divide foodstuffs into different classes.

1. Proteids, the nitrogen-containing foods and spoken of as the nitrogenous foods. The essential use of the proteids is to furnish material for the formation of new proteid tissue, to repair the old and also to furnish energy. While the different foodstuffs are necessary for proper nutrition, proteids are absolutely essential. If an animal is fed on a non-proteid diet, emaciation develops and death finally results. The

same takes place in man in case of starvation, in disease and on an improper diet.

2. Fats, which include not only such articles of diet as commonly designated as "fat," but all of the oils, both animal and vegetable. Their essential use is the production of energy and heat and as proteid-sparers. They are important as the body stores up its reserve force chiefly in the form of fat. They contain no nitrogen.

3. Carbohydrates, which include starches, sugars, gums and the like. Their essential use is similar to the fats. They contain no nitrogen. Relatively they are less valuable than the fats, but their cheapness, greater ease of digestion and destruction make them a chief portion of our food.

4. Water, while it does not furnish energy and heat, is necessary for the various chemical changes going on in the body.

5. Inorganic salts, generally obtained in the food, except sodium chlorid, have the same function as water. The part played by the chlorids in the production of hydrochloric acid is an exception.

6. Accessory articles of food, including stimulants, as alcohol, tea, coffee, beef extracts, and condiments, as pepper, mustard, and the like. These articles act mainly in stimulating the appetite and making the food more acceptable.

Physiology also teaches that, in order to maintain a normal nutrition, certain definite amounts of the various foodstuffs must be furnished and, while they may be varied within certain limits, the best results are obtained when the proper proportions are maintained.

The "average diets," as calculated by different physiologists to represent the average amount of foodstuffs required by the normal adult man of 70 to 75 kilos weight, are as follows:

	Moleschott.	Ranke.	Voit.	Foster.	Atwater.
Proteids	130 grams.	100 grams.	118 grams.	131 gr.	125 gr.
Fats	40 grams.	19 grams	56 grams.	68 gr.	125 gr.
Carbohydrates	550 grams.	240 grams.	500 grams.	494 gr.	400 gr.

Voit's estimates are usually accepted as meeting the normal requirements, and it will be observed that the ratio of the proteid to the non-proteid foodstuffs is approximately as 1 to 5.

In this table 118 grams proteid represents the dry material, not fresh lean meat, for in such there is a large percentage of water. To supply the requisite amount it is necessary to know the composition of the various articles of food. The analyses given by König are as follows:

COMPOSITION OF FOODS.

In 100 Parts.	Carbohydrate.				
	Water.	Proteid.	Fat.	Digestible.	Cellulose. Ash.
Meat	76.7	20.8	1.5	0.3	.. 1.5
Eggs	73.7	12.6	12.1	..	.. 1.1
Cheese	36-60	25-33	7-30	3-7	.. 3-4
Cow's milk	87.7	3.4	3.2	4.8	.. 0.7
Human milk	89.7	2.0	3.1	5.0	.. 0.2
Wheat flour	13.3	10.2	0.9	74.8	0.3 0.5
Wheat bread	35.6	7.1	0.2	55.5	0.3 1.1
Rye flour	13.7	11.5	2.1	69.7	1.6 1.4
Rye bread	42.3	6.1	0.4	49.2	0.5 1.5
Rice	13.1	7.0	0.9	77.4	0.6 1.0

In 100 Parts.	Water.	Proteid.	Fat.	Carbohydrate.		Ash.
				Digestible.	Cellulose.	
Corn	13.1	9.9	4.6	68.4	2.5	1.5
Macaroni	10.1	9.0	0.3	79.0	0.3	0.5
Peas, beans	12-15	23-26	1 1/2-2	49-54	4-7	2-3
Potatoes	75.5	2.0	0.2	20.6	0.7	1.0
Carrots	87.1	1.0	0.2	9.3	1.4	0.9
Cabbage	90	2.3	0.5	4-6	1-2	1.3
Mushrooms	73-91	4.8	0.5	3-12	1-5	1.2
Fruit	84	0.5	..	10	4	0.5

Meats vary considerably in their composition, as may be observed from the following analyses from König and Atwater:

	Water.	Proteid.	Fat.	Carbohydrate.	Ash.
Beef, moderately fat.....	73.03	20.96	5.41	0.46	1.14
Veal, fat	72.31	18.88	7.41	0.07	1.33
Mutton, moderately fat.....	75.99	17.11	5.77	...	1.33
Pork, lean	72.57	20.05	6.81	...	1.19
Ham, salted	62.58	22.32	8.68	...	6.42
Pork (bacon), very fat.....	10.00	3.00	80.50	...	6.5
Mackerel	71.6	18.8	8.2	...	1.4

Another fact must always be considered in estimating the nutritive value of food, and that is its digestibility and absorption, which can only be determined by experiments. All foods vary in this respect, but is most marked in the proteids. It has been determined that in meats 2 to 3 per cent., in milk 6 to 12 per cent. and in vegetables 10 to 40 per cent. of the proteids fail to be utilized and consist of waste. Any dietary which does not consider the body weight, the work done by the individual and the calories contained in the food must be considered unscientific. According to Voit and Rubner, the healthy adult requires daily approximately 3,000 calories and as determined consist as follows:

Proteids.....	$120 \times 4.1 =$	492 calories.
Fat.....	$50 \times 9.3 =$	465 calories.
Carbohydrates.....	$500 \times 4.1 =$	2050 calories.

3007 calories.

Determinations show that an individual at rest requires per kilogram of body weight from 30 to 35 calories; at light work, 40 calories per kilogram. Since a kilogram is equal to about 2 1/5 pounds, every pound of body weight requires at rest 15 calories; at light work, 18 calories.

The following table from Hector Mackenzie gives the caloric value and amount required to meet the normal demands:

Number of Calories in 1 Kilo.	Amount Necessary to Supply 3,000 Calories.	
Lean beef	980	3.1 Kilo.
Fat beef	3,270	0.9 Kilo.
White bread	2,290	1.3 Kilo.
Potatoes	660	5.0 Kilo.
Sugar	3,830	0.8 Kilo.
Milk	670	4.5 Litres.
Skim milk	390	7.5 Litres.
Butter	7,560	0.38 Litres.
1 egg	73	41 Eggs.

The next consideration of importance consists of the changes produced by tuberculosis. Arthur Latham has said: "One of the most marked and constant features of tuberculosis is loss of weight." Quoting from Flick: "Consumption is a wasting disease. Its most striking

feature is loss of tissue. Hence its name. First the fat of the body disappears. Then the muscles begin to dwindle." Cornet calls attention to the danger of absorption of proteids surrounding the tuberculous foci, and then not only inhibiting the natural process of healing, which is due to fibroid changes, but furthers the distribution of the bacilli."

With a knowledge of the normal requirements, the nutritive values of various foods and the changes produced by tuberculosis it is now possible to formulate a dietary more or less scientifically correct. In accomplishing this the excellent experimental and clinical work by Dr. Goodbody, Dr. Bardswell and Mr. Chapman has been of the greatest assistance. Their conclusions are:

"1. Tuberculous patients show very satisfactory results, both clinically and experimentally, when their diets are slightly increased in amount above what they have been in the habit of taking before coming under treatment. It is evident that the state of the appetite gives too low an estimate of their requirements.

"2. Diets of medium proportions, but still large, give the best results, and can probably be continued for an indefinite period.

"3. The digestion both of nitrogen and fats is good even in the case of patients with high fever. The absorption of fats, indeed, is excellent, even when very large quantities are given, e. g., with an intake of 231 to 232 grams 96.4 per cent. was absorbed.

"4. It is noticeable that the patients complained of the least discomfort on those diets which give the best experimental results, whilst the onset of severe dyspeptic troubles usually coincided with a deterioration in experimental results."

They found that their tuberculous patients where the disease was active required daily 70 calories per kilo of body weight and this demand was best supplied by an increase of the fats. When the lung condition improved, better results followed when the supply was diminished to 50 calories. According to their findings, "the most suitable diets for patients suffering from pulmonary tuberculosis that we had the opportunity of observing consisted roughly of about 120 grams of proteids, 140 grams of fat, 300 grams of carbohydrates. In English weight this is equivalent to about 4¼ ounces of proteids, 5 ounces of fats, 10½ ounces of carbohydrates. When these amounts are compared with those of the normal, as determined by Voit, the chief difference consists in an increase of the fats and a decrease of the carbohydrates.

Based on these considerations, Burton-Fanning advocates the following standard dietary in tuberculousis:

	Amount.	Proteid.	Fat.
Meat	5 oz.	1 oz.	½ oz.
Milk	3 pints.	2 oz.	2½ oz.
1 egg	2 oz.	¼ oz.	1/5 oz.
Porridge	Plateful.	⅓ oz.	.....
Bread	8 oz.	1 oz.	.....
Butter	2 oz.	Trace.	1½ oz.
Potatoes, etc.	4 oz.	.....	.....
Puddings	Plateful	.....	.....
Total about		4½ oz.	4½ oz.

These various items and others of similar nutritive value may be distributed throughout the day, depending upon individual conditions and demands. The following dietary may be taken as a general guide:

7 a. m. Fruit, cereal with cream and sugar, toast or graham gems and butter, jelly, or jam or marmalade; tea, coffee, cocoa, or chocolate. Two glasses of milk and one raw egg.

10 a. m. Two glasses of milk, bread and butter or toast or crackers. One raw egg.

12:30 p. m. Soup; meat, as rare roast beef, pork, lamb or mutton; chicken or turkey or a steak or fish. One or two vegetables, as potatoes, beets, carrots, turnips, peas, beans, corn, spinach. A salad with olive oil. Rice or bread pudding, custard, gelatin with cream and sugar, cheese; ice cream, fruit and various nuts or raisins.

4 p. m. Two glasses of milk, bread and butter or toast or crackers. One raw egg.

7 p. m. Cold meat with bread and butter, stewed fruit and two glasses of milk. One raw egg.

Dr. Albert P. Francine suggests the following dietary for patients with large appetites and good digestion:

7 a. m. One pint of milk and two raw eggs taken in bed.

8:30 a. m. Breakfast. Fresh fruit, cereal, bacon, salmon, herring, or tender steak, chop or chicken; dry toast, wheat bread or corn bread, a pint of milk or cup of coffee, chocolate or cocoa.

10 a. m. One pint of milk and one raw egg.

12:30 to 1 p. m. Lunch (heaviest meal), preceded by half-hour's rest. Thick soups—puree of vegetables, especially the albuminous legumen; a roast and vegetables, bread with plenty of fresh butter, simple desserts with sugar. Rest for one hour.

4 p. m. One pint of milk and one raw egg.

6 p. m. Supper, preceded by half-hour's rest. Light, simple meal, cold meats, light salads, tongue, sardines, etc. Pint of milk or cup of weak tea or cocoa.

9 p. m. One pint of milk and two raw eggs.

9:30 to 10 p. m. Patient goes to bed.

Dr. Alfred L. Loomis gives the following good rules to be observed in eating:

"1. Food should be taken at least six times in twenty-four hours; light repasts between meals and on retiring.

"2. Never eat when suffering from bodily or mental fatigue or nervous excitement.

"3. Take a nap, or at least lie down, for twenty minutes before mid-day and evening meals.

"4. Take only a small amount of fluid with the meals.

"5. The starches and sugars should be avoided, as also all indigestible articles or diet.

"6. As far as possible, each meal should consist of articles requiring about the same time to digest.

"7. Eat only as much as can be easily and fully digested in the time allowed.

"8. As long as possible systematic exercise should be taken to favor assimilation and excretion; when this is impossible massage or passive exercise should be undergone.

"9. The food must be nicely prepared and daintily served, made inviting in every way."

It is not to be inferred that any dietary, no matter how perfect theoretically, will meet the demands of each and every case. This is a problem demanding individual and careful study. As has been said by Burton-Fanning, "The physician must always be an opportunist." He must determine the individual requirements.

Aside from a properly selected dietary, many contributory factors are important and essential. A good appetite and a proper condition of the digestive organs are necessary. For the best results the food should be the best that the market affords, properly prepared, daintily served, at regular, stated hours, in a light, cheerful dining-room, and with congenial table companions. Regulated exercise or life in the open air is a potent stimulant to the appetite. Constant variations in the dietary must be made. Perhaps no one factor is more destructive to a good appetite than the stereotyped dietaries too frequently found in hospitals and sanatoria. Not only weekly but daily changes are required in order to keep the patient in a state of uncertain expectation. When this is done, many times the repast is taken with a growing appetite. To accomplish this the services of a competent and experienced dietician is indispensable. Such services are only second to that of the physician.

No detail, however small, must be overlooked, for the tuberculous patient, if left to himself, will not take a sufficient amount of food. The advice frequently given, "Eat all you can," is not sufficient. Explicit instructions, eternal vigilance by the physician or nurse, confidence in the treatment and a cheerful frame of mind are all necessary and important.

Unquestionably these conditions can best be obtained in well-regulated sanatoria, but unfortunately, as has been said, "in 98 per cent. of all cases of consumption home treatment must be depended upon." When this is the case, the services of a specially instructed private trained nurse are required, and if such can not be secured or made possible financially, then the excellent advantages offered by the free tuberculosis dispensaries are available.

Individualization in the feeding of the tuberculous has been emphasized and the occurrence of a pyrexia is usually accepted as a clinical indication demanding modification of the treatment. but, instead of a milk and egg or liquid diet, the results obtained by experimental studies, as well as clinical observation, demand rather an increase in the total amount of both solids and liquids. At the same time the amount of exercise must be regulated. According to Francine, "the patients with fever of a continuous type above 100° F. should be confined absolutely to bed." Burton-Fanning says: "The rule generally laid down

is that if the morning temperature is above 98.6° , or that of the afternoon above 100.4° , the patient should be kept in bed." He is even more strict and advises confinement to bed whenever the temperature exceeds 99.5° if the disease is slight and a complete recovery or an arrested condition is desired. In most cases with or without a pyrexia, a period, approximately a week, in bed is advisable when the patient first enters the sanatorium or comes under treatment. The existence of anorexia and dyspepsia, frequently associated with pyrexia, usually rapidly disappear when the patient is at rest and on a full diet. In a small proportion, practically when there is no pyrexia and the conditions are due to actual changes in the stomach or intestines, the amount of food must be reduced or varied in kind.

The coexistence of a diabetes, nephritis or some organic disease of the stomach, bowels or heart constitutes a distinct indication to modify the diet accordingly.

From what has been said the question of a deficient or "starvation diet" and an overabundant or "forced diet" will hardly require further mention. That evil results follow underfeeding is evident, while overfeeding is capable of producing almost as much harm. Generally speaking, the amount of nourishment must be increased. Burton-Fanning considers the following as particular indications for an increase:

"1. The patient's weight is low. It is a good rule to ascertain what was the maximum known weight in health, and to aim to bring him up to a weight which exceeds this by at least half a stone.

"2. Moderate activity of the disease, as evidenced by extension of the physical signs, and especially by persistent fever, affords a distinct indication for reinforcing the patient's nourishment.

"3. Lastly, the actual existence of anorexia and dyspepsia call for increased food if it can be ascertained that they depend on the mere debilitating effects of the lung disease affecting the organs of digestion in common with other parts of the organism."

The following conditions do not necessarily, according to the same author, require an increase in nourishment:

"1. There is the obvious case of the patient who has already passed his highest known weight in health, or the normal weight for an individual of his height and build.

"2. Patients presenting evidences of disease of the abdominal viscera in the form of tuberculosis or of albuminoid degeneration.

"3. Patients whose pulmonary tuberculosis is of old standing and associated with obvious development of fibrosis which impedes the circulation and interferes with digestion.

"4. Patients manifesting marked enfeeblement of the heart.

"5. Patients in whom the failure of appetite and of digestion is judged to be in excess of what would proceed from general constitutional weakness.

"6. The subject of acute tubercular processes, whose fever is very high."

The practical or clinical test of the influence of diet consists of the effect it has upon the weight, temperature and pulse. Latham says: "The weight of the patient affords, within limits, the best guide as to whether the diet is a suitable and satisfactory one and also as to the general progress of the patient." This necessitates the keeping of a clinical record, and the careful determination at stated intervals of the factors concerned. Weekly weighing is usually sufficient, but must always be made under the same conditions and circumstances as near as possible.

In the sanatorium this is easily accomplished, while in private or dispensary work the small record or "class book," as suggested by Minor of Asheville, is of great service. It serves not only as a clinical record and a guide in the treatment, but acts as a stimulant to the patient. A gain of several pounds a week is not infrequent during the first few weeks of treatment. This occurs more particularly in favorable cases, where the pyrexia is not excessive, no anorexia or dyspepsia present and when the appetite is good. Much of the increase in weight is due to the increase of adipose tissue, and as the exercise is increased and the nourishment decreased during the stage of "hardening" the gain is not so rapid. An increase of about two pounds a week is a good general average. The appreciation of the importance of increasing the patient's weight has resulted in the development of special forms of treatment. In some, one or two varieties of food constitute the chief form of nourishment. A consumptive should not be given one kind of food to the exclusion of all others. If this be attempted, to supply the necessary daily demand according to the caloric value, the patient must consume of milk alone some five or six quarts; eggs, forty to fifty, and beef, about seven pounds.

The importance of milk in feeding the consumptive is expressed by Stokes when he says: "Milk alone is of more value in this disease than the whole *materia medica*." Francine says: "Milk and eggs are the essential part of the diet when a 'diet' is called for, and under no circumstances, or only the most exceptional, should they be omitted." When the patient is informed of the importance and necessity of taking milk and eggs in the prescribed amounts, that his life depends upon it, as a rule but little difficulty is encountered. Too often the physician's zeal leads him to prescribe or sanction an increase beyond the necessary demand or reasonable limits, and soon the patient develops a dislike for all kinds of food. The milk should be fresh, rich, unboiled and taken slowly at stated hours in definite amounts. If distress is produced, lime-water, sodium bicarb. or an aerated water may be added.

Eggs are best given raw, preferably after meals and lunches. The egg should be broken into a glass, without breaking the yolk, and then the juice of orange, lemon or a small amount of wine added and the entire amount taken much in the fashion of swallowing an oyster. Some prefer taking the milk and eggs in the form of eggnog. In whatever form not less than three pints of milk and four eggs should be consumed daily—this in addition to the other food. A word of warning is also necessary in reference to employing special articles of food and drugs. Cod-liver oil, pure or modified, may be tolerated by some, but, on the whole, it

should be classed with creosote, guaiacol and the like, relics of the past, for they too frequently produce gastric disturbances, destroy the appetite and defeat the object for which they are given. A good bitter tonic, when indicated, will accomplish much more.

In conclusion, let us remember the aphorisms of three of the masters of medicine :

“Such food as is most grateful, though not so wholesome, is to be preferred to that which is better though distasteful.”—(Hippocrates.) “More importance is to be attached to the desires and feelings of the patient than to doubtful and fallacious rules of medical art.”—(Sydenham). “Physicians appear to be too strict and particular in their rules of diet and regimen; too anxious attention to those rules hath often hurt those who were well and added unnecessarily to the distress of the sick.”—(Heberden).

DISCUSSION ON THE PAPER OF DR. TICE.

Dr. E. H. Butterfield, of Ottawa:—Dr. Tice has well stated in his valuable paper that a consideration of the governing principles are of far more importance than a discussion of the various diets in pulmonary tuberculosis. There is no problem more difficult oftentimes than the correct feeding of the individual tuberculous patient. The greatest diversity exists in the power of assimilation even in the individual case during the progress of the disease. Digestion and assimilation do not always go hand in hand, and too much food may add alimentary disturbance to an existing specific intoxication. Indiscriminate stuffing of tuberculous patients should give way to systematic dieting. The activity and extent of disease, the digestive capability, the personal dietetic likes and dislikes, should be considered. Great care should be exercised in the selection of diet for a patient who, as the result of treatment, has reached or passed his highest known weight. Then, again, if this be associated with rest, the original diet found suitable for a patient considerably under weight, and with active lesions, should be reconstructed more upon the lines of what would be suitable for the same person in perfect health. Anorexia, dyspeptic symptoms and vomiting are much more frequently met with than when working with large diets, than when more moderate amounts of food are given. The appetite must be consulted. It is sometimes well to humor the whims of patients than to try to combat them, and one is soon convinced then that an inflexible rule can no more be enforced for dieting than for medication. Some patients have a decided aversion to milk, and say they can not take a drop. A little tact and diplomacy is necessary here. It is wise to begin with small amounts, a half ounce or less, gradually increasing this until the patient is able to take three or four pints with very little inconvenience. Raw eggs may be administered in connection with the milk. If these are not very well borne, milk can be used as a vehicle, the egg beaten up and incorporated with the milk in the form of eggnog. Grape or lemon juice are convenient and palatable vehicles. There are few forms of food more fattening than milk and eggs, and none which will fill so well the general indications in furnishing a variety of nutritive aliment.

Dr. Ethan A. Gray, of Chicago:—Inasmuch as every case of tuberculosis is a definite problem, we have to have some way pointed out to us in order to solve it, and one way of solving the problem is by improving the diet. We have to deal sometimes with people who can not go to sanatoria, who can not go to Denver, or other point in Colorado, to Arizona, or elsewhere. They have to be treated at home. We get many of these cases in our dispensary work. We get patients who, perhaps, have been to Colorado, and while there have lost twenty or forty pounds. They are pretty well down and out perhaps. Now, we endeavor to build up the appetite of such people, who can not live on climate nor air, but by giving them a combination of climate, good Illinois fresh air and an abund-

ance of good food we can accomplish great good. Of course, at the same time, unless these patients have extensive cavities in the lungs, we will see great improvement following proper feeding. In some cases it may be necessary to resort to forced feeding. A patient who is reduced to 80 pounds, and who may run up inside of thirty days to 115 pounds, must have had a liberal and forced diet.

As to the gain in weight, there is another point we have to consider, otherwise we will be led astray. The scales will tell you much, but unless the weekly gain in weight is commensurate with the movement in other symptoms, the diets are of uncertain quantity. There must be more or less reduction in temperature, some reduction in the amount of expectoration, and more or less general elevation of spirits. There is another thing which I should like to have brought out, and that is, in taking care of such a patient, in laboring with him, you must use the personal element. You can do more with that than you can with your tonics. The personal element always counts.

Dr. Tice (closing the discussion):—I have but little to add to what I have already said. One idea I tried to impress upon all was the necessity of studying each case. I think it is absolutely impossible to lay down any rules for the feeding of consumptives or any other class of patients and expect every patient to be benefited. It is necessary to study each individual case and find out what the requirements are, and this is one great advantage of sending patients to a well equipped and properly conducted sanatorium, where they are under daily observation, where they can be watched not only mornings and nights, but practically all day long, and simply meet the conditions as they may arise.

CLIMATE AS A FACTOR IN THE TREATMENT OF TUBERCULOSIS.*

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I fear that I shall not tell you much to-night that is new, but as we all realize the medical profession must often be reminded of what it already knows, and if I bring to your attention facts long recognized, but which have by many been recently neglected, I shall not deem my time wasted. Our profession is proverbially slow in its acceptance of new facts or theories, but very often we go to the opposite extreme when once we are convinced. An excellent illustration of this fact is the history of tuberculin. We can not look back at the action of the profession with this agent with any pride. The ridiculous over-enthusiasm and hysteria the profession exhibited, first in accepting, and then rejecting this valuable agent, resulted in retarding its use for almost twenty years, and but for the fact that some of our professional brethren were not quite so emotional, it probably would have been entirely discarded.

We are now witnessing a somewhat similar exhibition as regards the climatic treatment of tuberculosis. As long as we have history there has been a belief in the value of a change of climate for the tubercular patients. Celsus recommended sea voyages and a residence at the sea shore in phthisis. Galen recommended hilly districts, combined with the use of milk, while the elder Pliny advised a residence in the pine woods, advice which, with variations, has continued to this day. In more recent

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years the physician often thought his duty done when he had made the diagnosis and advised the patient to go west, an absurdity that no one will attempt to defend, though the thousands of cures still living show that it was the best they could have done with the state of knowledge, say twenty years ago.

In 1859 Brehmer established the first sanatorium for tuberculosis at Goebersdorf, and while some of his views were untenable, yet his institution was certainly the foundation for all the sanatoria and open air treatments that have followed. In 1884 Trudeau established the first open air sanatorium in America at Saranack Lake, N. Y., and to my mind has developed an institution that in technique is superior to any in Europe, where I visited some twenty places during my year's stay. Each of these pioneers had the greatest difficulty in having their views accepted, as is evidenced by the fact that it is only in the last few years that they have found anything like general acceptance, though as noted, Trudeau has been treating on those principles for over twenty-four years. But when the profession finally were converted to this faith, they were not satisfied to observe good old Presbyterian or Congregational conservatism and decorum, but they became shouting Methodists; indeed, by the drum beating policy followed by some, I might compare them to the Salvation Army. This state of over-enthusiasm in the late acceptance of these old truths is perhaps best evinced by the ridiculous assertions one sees and hears almost every day now, regarding the curability of this dread disease.

We do not speak of cures in cancer under five years, and we should wait twice that long for a tubercular case, but members of our profession, whose experience with outdoor treatment in many cases is limited to two or three years, and a dozen or so cases, are now informing Trudeau, King, and the world at large that sanatorium treatment is unnecessary, and that change of climate is a delusion and a snare, this by gentlemen whom it took twenty years to convince. I do not wish to detract in any way from the great good that has been and is being done by the home treatment of tuberculosis or by sanatorium treatment in the home climate, but I do want to warn you not to be carried away by over-enthusiasm as some seem to be, and to ask you to take each at its real value.

For the present at least we must treat most cases at home simply as a matter of finances, and for the same practical reason it is possible that our state or municipal governments should build local sanatoria. but I want to remind you that home treatment is only a substitute for the sanatorium treatment, while a sanatorium in the home climate is only a substitute for a sanatorium in a favorable climate, that the fewest cases will get well under the first conditions, and that the most cases will get well under the last. We do not claim a specific when a half dozen cases of typhoid get well under some new treatment, and no more should we think that because we have cured a few cases of tuberculosis in their own back yards that it is necessarily the most desirable and best treatment.

If you do, you are going to lose lives that could otherwise have been saved, and while a sanatorium located in this murky, damp climate will save many, a sanatorium located in a favorable climate will save more.

Flick and a few others have gone so far as to say that there is absolutely nothing in climate. This appears absurd to me, and must to any one who has made any study of climatology, or who has even made a visit to the southwest. We assume that pure air is one of the great factors in the treatment, otherwise we might as well treat patients in the cellar as on the roof, down around the stock yards as well as in the country. Pure air is after all merely a relative term. There is perhaps no absolutely pure air; a slight deficiency in the oxygen or a very small increase in the amount of carbonic acid of the air we breathe may be of considerable importance. We go to great expense to procure pure water. Is it well that we procure the purest air obtainable to go in the diseased lungs of our patients? It is admitted that the purest air is found on the ocean, in the deserts and on the mountains.

Granted pure air, there are other important factors to be considered, for among the three named there is, aside from its purity, a world of difference. The chief of these, I think, can be proved to be: altitude, humidity, and amount of sunshine. The first and perhaps the best proof of the importance of these factors, is the fact that the districts that are notable for either a high altitude, a low humidity, or a high percentage of sunshine, are notably free from tuberculosis, while the countries combining all three are practically free from this disease. The Alps are a fair example of high altitude, while Southern California has a high percentage of sunshine, but only an average humidity owing to the proximity of the ocean. New Mexico, Arizona, Colorado and parts of some other states present a combination of the three, as do parts of Mexico, South America, South Africa and other places.

Knowing that these regions are remarkably free of this disease, it seems natural to assume that they would at least assist in the cure, other things being equal, and it certainly has been borne out by years of experience, and in thousands of cases. I fancy that every man in this room knows of cases that have gone to the southwest, and often without even proper care, or any particular change in their mode of living, have become cures or arrested cases. I myself went to the southwest with tubercular trouble and returned a supposed cure. I then went to Germany and entered the University of Heidelberg and after eight months there (though I had lived under the best conditions possible to do my work) I began to have signs of a return of the disease. I at once went to Davos Platz, Switzerland, and remained three and one-half months, working as hard and living the same as I had in Heidelberg, and yet I constantly improved. Nothing but climate can explain such cases.

I am reminded of a young man of this city that I at one time advised to go to a sanatorium in New Mexico. He went to New Mexico, but did not enter the sanatorium. First he lived for a month in a rather poor

hotel, loafing around the town; later he took a position working at carrying messages and keeping time for a gang of men working in the Rincon tunnel, where he was often compelled to crawl on his hands and knees in the darkness of the tunnel, and despite these unfavorable circumstances, he steadily improved. Thousands of the people making up the population of that section came there for tuberculous trouble; most of them have lived as they lived in the east, have in most cases worked at their usual occupation, and yet have become cures in many cases, in others only arrested cases, but they go on leading busy, useful lives. All this certainly can be ascribed only to the benefits of the change of climate.

Long ago Ex-Surgeon General W. A. Hammond wrote:

“New Mexico is by far the most favorable residence in the United States for those predisposed to, or afflicted with, phthisis. In a service of three years in New Mexico, during which period I served in eight different stations, ranging from the extreme northern to extreme southern parts of the territory, I saw but three cases of phthisis and those were in persons but recently arrived from the United States.”

Few, if any, in our country have had the experience in tubercular work of the late Dr. Solly, of Colorado Springs. He wrote: “During twenty-two years of my practice in Colorado Springs my colleagues and myself have only been able to collect some twenty cases that have originated in this town, population 22,000, and this in spite of the fact that the hygienic conditions of some of the poor parts of the city are very indifferent.”

I might add that this is all the more remarkable from the fact that Colorado Springs is one of the oldest and best known resorts for tuberculosis in the west, and a large percentage of the people living there are there as a result of one or more members of the family having the disease. In Albuquerque, N. M., a town that has been the resort for thousands of tubercular cases for years, I asked a local physician who had lived there some eight years his experience on that point. He said that he had not had a case occur in his own practice, but knew of one that had occurred in the practice of a friend in Old Town, a suburb.

While I was in old Mexico three years ago I took particular care to inquire into this among the physicians I met and the answer was always the same in the country noted for the dryness of the air and high altitude. There was practically no tuberculosis. It is all the more remarkable since I met physicians only in the larger cities, such as Mexico City, Agnas Calientes, Guanajuata, etc., the first city with a population of 400,000 people. Long ago Archbold Smith and Tschudi published observations as to the extreme rarity of phthisis in the Andes. During a year's residence there Smith saw only one case: a woman who came from Europe. Holden did not see one case in Bogota during a prolonged residence there. The plateaus of Armenia and table lands of Persia are almost devoid of tuberculosis. Writing of Upper Silesia,

Virchow said: "Although I have seen an exceptionally large number of sick persons of the poorer class, both in town and country, at their homes and in hospitals, yet there has not come to my notice a single case of phthisis."

We are, however, not confined to strictly empirical proofs. There are good and sufficient reasons why we might expect this. Take the one factor of altitude alone and we find such physiological changes produced in the healthy patient by an increase of altitude that we might expect good in the tubercular; changes that are constant and marked in every case. One of the most remarkable is the blood changes.

Regnard at sea level placed a rabbit under a bell glass and reduced the atmospheric pressure until it was equivalent to an altitude of 9,500 feet. The rabbit remained fat and healthy and when he came out examination of the blood showed that it absorbed 21 c.c. of oxygen as compared to 17 c.c. that the blood of its fellows could absorb at sea level.

Dr. Egges, experimenting in Arosa, Switzerland, altitude 5,500 feet, on 27 cases found an average increase of red blood corpuscles of 16 per cent. after a few weeks. The increase was greater in non-tubercular persons than in tuberculous. Experiments on rabbits showed an increase of 17 per cent., and he demonstrated by tapping the carotid and femoral arteries that it was not confined to the capillaries and superficial vessels alone. He also found an increase of 16.33 per cent. in the hemoglobin; the latter, however, increasing more slowly than the corpuscles. As this is exactly what happens after a hemorrhage, when there is a rapid increase of red corpuscles followed by a gradual increase of the hemoglobin, he believes it to be additional proof that altitude increases the actual amount of both corpuscles and hemoglobin and that it is no mere relative apparent increase. Muntz, experimenting on rabbits, found that the specific gravity of the blood, also the amount of iron, was increased by a high altitude. Fiault also got the same results. Regnard probably established the basic cause, when he proved that if the barometric pressure was decreased the blood's power of absorption of oxygen was increased.

These results I have seen myself time after time, and as a routine at Silver City we added a million to the usual normal count to establish our normal there, and at Davos Platz, Switzerland, we expected about the same increase for the normal count. In fact, many people are sent there for the very reason that they suffer from anemia, and since anemia so often complicates tuberculosis, is it not rational to suppose that this change is of decided value? Dr. E. S. Bullock, in a recent letter to me, says that the blood pressure in a large number of advanced cases in his sanatorium showed 25 per cent. higher than that of an equal number of incipient cases taken in Baltimore, and he adds that he always considers a low blood pressure in his patients as a bad sign. Then, with increased altitude, we get pure air so that at 5,000 feet or over it is almost sterile, as is demonstrated by the fact that ranchers after killing a beef have

only to hang it in the open air on a pole to insure its keeping fresh. It, of course, finally becomes dry, but never becomes stale or putrid.

Niquel, experimenting at Mount Sorne, found in one cubic c.c. of air 80 bacteria; in the Rue de Rivoli, 920; in Hotel Dieu, 7,500; in Hotel de la Pitie, 29,000 bacteria. Frankland and Pelsis have gotten similar results. You will also find after some months an increase of from one to two inches in the measurement of the chest, showing that all the air cells are expanded and in use. Can any one doubt that such marked physiological changes can be without effect upon a patient?

As is well known there is more ozone in the air of the mountain than in that of the lowlands, while at high levels the positive electricity is increased, which may explain the wonderful exhilaration one feels in such places. The effects of a low humidity are not quite so marked, but that they are marked is proved by the low percentage of tuberculosis in all climates where this obtains, and we all recognize the depressing effect of our heavy humid atmosphere that we experience on many days in Chicago. I use "heavy" here only figuratively, for I recognize the fact that in reality damp air is lighter than dry air, but since water is an excellent conductor, while air is not, it feels heavy. This indeed is one of the benefits of dry air.

The Government Weather Bureaus now recognize and register two kinds of temperature, the actual, registered by the ordinary thermometer, and the sensible, measured by a thermometer with a bulb surrounded by a damp cloth, so as to make it approximate the condition of our body, which is constantly cooled by surface evaporation of perspiration. The records go to prove what the residents of the Rocky Mountains always claimed, that we are more comfortable there at a given temperature than in the humid air of the east at the same height. The value, of course, varies with the humidity, but the average will easily reach 15 degrees. In other words, one will be quite as comfortable in one of the towns of the southwest at 90 degrees as they would be in the east at 75 degrees. As a result, while the extreme of heat for Chicago and Albuquerque, N. M., are the same by actual heat measurement, by sensible heat measurement it is the same at Albuquerque as at Southern Canada. I was surprised one day in Phoenix to learn, after having worn a heavy coat and vest all day and had experienced no inconvenience, to find that the thermometer registered 93 degrees.

The third and last factor, "sunshine," is, I believe, quite as important as that of humidity. Weber and others have demonstrated that a want of sun light will develop symptoms of general depression and a condition analogous to intermittent fever, while we have all seen its good influence in anemia and other conditions. The time bactericidal effect of the sun has never been recognized, and the intense, almost constant sunlight of the southwest may explain to a great extent the rarity of living organisms in the air. Experiments carried on at the University of New Mexico in Albuquerque showed that as low as five minutes exposure to the sun of a smear of tubercle bacilli would destroy them.

A secondary effect of sunshine that is also quite important to my mind, is the effect on the minds and spirits of the patients. Almost anywhere in Arizona or New Mexico one can depend upon 320 or more clear days a year, and a day that is cloudy all day is very rare, but when one does occur it is not difficult to note the depression on the faces of the patients.

I have already shown that people going from the east with tuberculosis settle in the southwest and with no particular change in their methods of living get well. We could hardly ascribe this to anything but climate. Quite as remarkable is the fact that there is one very well known sanatorium in the east that sends its cases which fail to improve there, to a sanatorium in New Mexico. I know personally of seven of these cases, as I had them under my care for three months while acting superintendent, and all have done well and are home as cures or as arrested cases. As the technique in the two institutions is quite the same, we could hardly find anything to explain this but climate.

With these facts before us I can see no reason for treating a patient that can afford to go west and have proper accommodations and care. It is my belief that there are cases being allowed to die in the east that could get well in the west, and here would be a good place to read a part of a letter I had recently from Dr. Bullock, of the New Mexico Cottage Sanitarium, that is, at least, significant. He writes: "Suffice it to say that in the past four or five years since the home cure (?) has been popular, our percentage of far-advanced cases over incipient and those moderately advanced, has increased 50 per cent. In my institution at present I have 90 per cent. of far-advanced cases, and at this time seven years ago I had 45 per cent. of far-advanced cases. So you see that broadly we can say that our successes are made from their failures."

There is food for thought in this. Personally, I know of many cases that failed in home cure, that now, as advanced cases, are taking the cure in New Mexico and most of these are improving. In most of these cases there was no reason or excuse for keeping them at home, as their finances were adequate. Another portion of Dr. Bullock's letter is of interest and bears on a very important point. He writes: "In ten years constant life in a sanitarium here I have never seen an intercurrent infectious disease among my patients," and a little further on he makes the even more important assertion that: "Mixed infection never develops here." Do you consider that of advantage to a "lunger" struggling for his life against tuberculosis?

I will not tire you with more arguments on a point that seems so self-evident. I wish, however, to read to you the opinions of a few men whose experience makes their words of more weight than mine can be. To begin with, in our country that grand old man among physicians in this work, Dr. Trudeau, who was the pioneer of the "out of door" treatment in America, holds the same opinion as to the value of a good climate that he did 24 years ago. He never put it as pre-eminent. He

does not now, but he recognizes it as of great therapeutic value. Dr. King, who has perhaps done more to popularize out of door sleeping than any other one man, has the same views. In our own city, Dr. Arnold C. Klebs, who has done so much to popularize open air treatment, in conversation with me, characterized as nonsense the idea that there was no value in a change of climate. We all know and respect Dr. Babcock, and after his years of experience, he says in his new work on tuberculosis:

“The discussion of phthisis-therapy would be far from complete were the consideration of a change of climate neglected.

“Of late, under the influence of the sanitarium idea, there has been growing up in certain quarters an inclination to scout the benefit or desirability of a change of climate in the treatment of pulmonary tuberculosis. It is argued in effect that since it is life in the open air, together with other hygienic and dietetic accessories which accomplishes a cure, either absolute or relative, there is nothing to be gained in one climate over the other. While agreeing fully with the premises of the proposition, I cannot coincide with the conclusion. As regards purity of the atmosphere: It is assuredly a great desideratum and furnishes a strong argument as compared to the home climate, and yet it must be acknowledged that the air in a sparsely settled locality is not so contaminated with germs, dust, or smoke as to render it injurious for the tuberculous. It must be the abundance of sunshine and great preponderance of cloudless days that makes most of the health resorts so desirable a place of residence for consumptives.

“Freedom from sudden change of weather is a special recommendation of certain climates since the invalid can reckon with certainty on pleasant weather from the beginning of a day to its close, and often from one week's end, or one month's end to the other. Consequently, in such an equable climate, the tuberculous invalid runs comparatively little danger of the congestion and catarrhs so dreaded in the open air management of the patients in a changeable, often damp and cloudy climate at home.

“There is one other phase of the question still to be considered, viz., altitude: Does a mountain climate offer special advantages to the tuberculous? It is my opinion that it does.”

In England such men as Wabber, Hunter and others might be quoted, had I time. As we have seen, Germany has had forty-nine years in which to thresh out this subject, and I will end my quotations with the words of Professor G. Cornet, of Berlin, whose experience, both in the home and the sanitarium treatment, can be equalled by few men in the world. In the last American edition of Nothnagle's *Encyclopedia of Medicine* he says: “The conditions demanded by rational treatment of the disease are rarely satisfied in the home, even in the case of well-to-do people. Far back in antiquity consumptives were sent to reputed health resorts. Which cases should be sent away, where to, and for how long a time? For cases in which the therapeutic indications cannot be satisfied in the home and which have

sufficient means, a change to a health resort is very desirable. The extent of the disease enters into account in so far that patients who have had high fever for some time, who are much emaciated, and who have no hope of recovery should not be subjected to the disturbances of a long journey with its unavoidable excitement and injury. It is just such patients, who, on the approach of death, are seized with the desire to travel, although they had, perhaps, opposed that very demand when made by the physician in the earlier stages of the malady. It is difficult to dissuade them or to restrain them until "they shall be stronger."

Fever in itself is no contraindication, even if it is high, if it has lasted only a few days or weeks, or if it has lasted for some time, but has not reached a very high point. It is, indeed, well recognized that change of climate often of itself rapidly cures fever. We must not throw up the sponge too early, for often patients have been saved by a change of environment after having been given up. There is a general tendency to wait until the fever has abated. I, in common with many of the most experienced specialists, put faith in the favorable effect of a change, and take just the opposite standpoint. Nothnagel considers change of climate to be often the only cure for fever, and Brehmer and others similarly express themselves. The annoyances of a trip are to be recognized, but not overestimated; otherwise, it would be like postponing the use of antipyretics until the fever has abated.

On the whole, the patient is to be sent away as soon as possible. The sooner he goes the better are the prospects for an early and complete recovery. Every week of delay may add months of invalidism. Nothing is so harmful as the notion that the patient is not so sick as to need immediate change, and that it is well to wait. When once the diagnosis has been made, the disease is serious enough to make every delay serious. Even if there is only a strong suspicion of tuberculosis, it is well to be on the safe side. It is preferable to send a patient away too early or unnecessarily, rather than to have subsequent misgivings."

All of these gentlemen, of course, expect that the patient shall have proper food and good living quarters and that they be under competent professional supervision.

To sum up, I think we can say that granting that in most cases it is possible to treat tubercular patients at home, yet with patients who can afford it, we are doing our whole duty only when we send them where they can have, not only the benefits of expert phthisiotherapists, but where they can also have the benefits of a suitable climate; where they can not only take the open air cure, but where they will be glad to be out of doors day and night, and not be out as a matter of duty; where also they are free from the dangers of mixed infections and occurrence of intercurrent diseases.

Finally, I think tradesmen and others who can later secure positions there should be sent where they may work at their trades and still live comfortably and well.

THE PRESENT STATUS OF THE RELATION OF BOVINE TO HUMAN TUBERCULOSIS.*

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CHICAGO.

Koch in 1901 called the attention of the medical profession throughout the world to the question of the intercommunicability of bovine and human tuberculosis. Theobald Smith says that there are some undoubted cases of bovine tuberculosis in children, and among whom ingestion does play a more important part than in adults, but that there is at present no evidence that bovine bacilli may be transformed and assume the human type in the human body. Koch went further and denied the transmissibility from man to cow and vice versa. He was the first to state authoritatively that tuberculous cattle are not a source of infection to human beings.

Behring asserts that tuberculosis in man and cattle is propagated by identical bacilli, and that practically all tuberculous infections in man have a bovine origin, and that the seeming difference between the human and bovine bacilli result from the capacity of the bacilli to accommodate themselves to the organisms in which they live. He also holds that bovine tubercle bacillus is more virulent for man than the human tubercle bacillus. He also believes that the infant's diet of milk is the whole source of infection in tuberculosis.

De Schweinitz, United States Bureau of Animal Industry, has isolated nine cultures from human tuberculosis. By comparing these cultures with the newly isolated virulent cultures of bovine tuberculosis, there were found among them two cultures from children which were identical in their cultural and morphological characters with the bovine bacillus. Chaveau demonstrated that human tubercle bacilli were possessed of sufficient virulence to produce disease in animals and when injected subcutaneously they caused local tuberculous disturbances; hence he claims that they are practically identical.

The Royal Commission in England in concluding their report of their investigation, the commission says: We have very carefully compared the disease thus set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin, and so far we have found they are both in its broad general features and in its finer histologic details, to be identical with the other. We have so far failed to discover any character by which we can distinguish one from the other. On the other hand, the German commission and nearly all the French and German bacteriologists believe the existence of two types of bacilli is proven. Theobald Smith, Ravenel and the great majority of American pathologists, most of whom have done experimental work, agree that there are two types of tubercle bacilli, distinct in cultural characteristics, virulence and morphology.

Koch's claim that human type will not infect cattle has been disproved by many observers; however, the infection of animals to human

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tuberculosis has rarely occurred in feeding experiments and has been successful in only a small number of instances after inoculation. Experimentation has shown that the human bacillus is not very virulent to cattle. On the other hand, it has demonstrated that the bovine bacillus is very virulent to cattle and swine. The question which is of greatest concern to us is whether bovine bacillus is transmissible to man, and if so, to what extent? It has appeared to me that we might obtain some indication from statistics as to the frequency of human infection from animal sources. While not losing sight of the fact that pulmonary tuberculosis may be caused by ingestion as well as by inhalation of the bacilli, we may nevertheless admit that by far the greater number of cases of pulmonary tuberculosis are the result of infection by inhalation. This being the case we should expect to find a difference in the rate of increase or decrease of tuberculosis of the lungs as compared with other forms of tuberculosis.

Thorne's table shows that in England and Wales, between the periods of 1851 and 1860 and 1891 and 1895, there was a reduction in the mortality of all ages from pulmonary tuberculosis of 45.4 per cent., while the reduction of mortality at all ages from tabes mesenterica was but 8.5 per cent., and the mortality from tabes mesenterica under one year of age actually increased 27.7 per cent. for the period referred to.

In Massachusetts for the years first mentioned for the period under five years of age the death rate from pulmonary tuberculosis was 46.3 to 1,000 deaths from all causes. For the two years last mentioned it was but 15.6 to 1,000 from all causes. In the two years first mentioned there were in the same age class 70.7 deaths from other forms of tuberculosis to each 1,000 deaths from all causes, and in the two years last mentioned there were 96.2 from other forms of tuberculosis to each 1,000 deaths from all causes; thus in 40 years there was an increase of 36 per cent. in the forms of tuberculosis other than phthisis in the class under five years of age. While there was a reduction of the mortality from phthisis from all ages of about 45 per cent.

In Michigan for the years from 1870 to 1884, inclusive, in the class under five years of age there were for each 100 deaths from consumption 81.8 deaths from other forms of tuberculosis. From 1885 to 1897, inclusive, there were 104.3 deaths from other forms of tuberculosis to each 100 from consumption. While during the three years from 1898 to 1900, inclusive, there were 263.3 deaths from other forms of tuberculosis for each 100 in consumption. Why this tremendous increase in the mortality from other forms of tuberculosis as compared with consumption at what has been called the milk drinking age of life?

Gottstein states that among children in Berlin the mortality of those at the breast is but slightly more than half as much from tuberculosis as among those otherwise nourished. The figures we have just studied seemed to be contradicted by other experiments equally convincing, indeed the weight of opinion is on the other side, led by no less an authority than Robert Koch.

Bovaird, Jr., discusses the experimental work done by American and European investigators and after considering the evidence pro and contra sums up by saying that it appears that human tuberculosis can be transmitted to cattle, but with difficulty, and it seems highly improbable that such transmission plays any great part in the production of the disease among cattle. Bovine tuberculosis can be transmitted to man, but the evidence that such transmission occurs under ordinary circumstances, is extremely scanty and it is highly improbable that such transmission plays any important part in the spread of the disease in man. An important feature in the research work done has been that relative to the infection of children through the intestines, and of this the author says: it seems that we can still safely say that the greatest weight of evidence is against frequent infection of children through the intestines, and that we cannot, therefore, consider that tuberculous milk is frequently the means in conveying the disease.

Ganghofner, after studying the autopsies of 253 children who died of tuberculosis, states that the bacilli of bovine tuberculosis rarely give rise to human tuberculosis by transmission in the food. He compared the statistics of human tuberculosis in certain sections with the official data of bovine tuberculosis and tuberculosis of the udder. He found nowhere any parallel between the two diseases. Often human tuberculosis was rife where bovine tuberculosis was scarce and vice versa. Spengler states that in all the cases he has examined of localized tuberculosis of adults and children in whom the disease was not suspected, it was clear to him that the origin was in the bronchial glands and that the mesenteric and intestinal glands were not affected. In children who died of tuberculous meningitis, tuberculosis of the bronchial glands was never absent. Raw, as a result of an observation of 3,500 cases of tuberculosis with, in addition, a study of 650 autopsies in such cases, expresses the opinion that human and bovine tuberculosis are separate and distinct varieties of disease and that the human body is susceptible to both.

The Imperial Board of Health of Germany has given out for publication the report of the committee which has been studying, under governmental auspices, the relation between human and bovine tuberculosis. The committee distinguished two types of tuberculosis. From one to two years of experiment and test failed to show any indication of transformation of any one of these types into another type. The attempts to inoculate cattle with human tuberculosis all resulted negatively.

If, as Behring says, the bovine tubercle bacillus is more virulent for man than the human tubercle bacillus, a more virulent disease must result from bovine than from human infection, and, moreover, if practically all infections occur in nurslings from infected milk, then the greatest prevalence of tuberculosis should be in the years of infancy and early childhood. Tuberculosis, however, is rare in infancy, as the observations of Westenhoffer, Froebelius, Baginsky, Biedert, Lannelongue, Huebner, and all pediatricists show. Moreover, the mortality increases from birth until about the fifth year, and then declines to the age of

puberty, after which it again steadily increases. Epstein in four years did not find a single case of tuberculosis in the autopsy material of the foundling asylum at Prag, where the children were received directly from obstetric clinics without having been associated with tuberculous mothers. Again, if Behring's proposition be correct that the bovine tubercle bacillus is the chief and practically the only source of infection, the mortality from tuberculosis of children nourished with cow's milk should at least far exceed that of breast-fed infants; but this is not the case. In Berlin records have been kept of the method of feeding all children under one year who have died of tuberculosis, and the figures are cited by Fraenkel as follows:

In 1899 the total infantile death rate from all causes was 10,933; in 1900, 11,762; in 1901, 11,325; in 1902, 8,927. Of these there received mothers' milk exclusively, 898, 895, 832 and 733 respectively, of whom there died of tuberculosis in 1899, 11, 1.1 per cent.; in 1900, 8, 0.9 per cent.; in 1901, 4, 0.5 per cent.; and in 1902, 5, 0.7 per cent. Of children reared exclusively on cow's milk there died in 1889, 6,631; 1900, 7,305; 1901, 6,982; 1902, 5,246; and of these death was due to tuberculosis, respectively, in 79, 1.2 per cent.; 70, 0.9 per cent.; 63, 0.9 per cent.; and 61, 1.1 per cent. From these figures it will be seen that the maximum difference in any one year between the two series is represented by only 0.4 per cent., a fact which does not bear out Behring in his views.

Speck, in order to determine the degree of danger of tuberculous infection in infancy from milk, made inquiry of the various sanatoria for tuberculous patients in Germany concerning the method of feeding of patients up to the third month of life. It was shown that of 4,467 phthisical patients of the sanatoria, 3,455 had been breast fed, or 77 per cent., and 1,012 had received cow's milk, or 23 per cent. Of 259 cases reported by other physicians 181, or 70 per cent., were breast fed. Jacob and Pannwitz reported 2,921 tuberculous patients; 1,877, or 67 per cent., were raised on cow's milk. Schroeder reports 264 cases; 203 were breast fed, or 77 per cent., and 61, or 23 per cent., were fed with cows' milk. Servæ reports 99 cases, of which 63 received women's milk, or 64 per cent., and 36 received cows' milk, or 36 per cent. These figures Speck has summed up, making a total of 8,010 cases of tuberculosis, of which 5,854, or 73 per cent., were breast fed children, and 2,156, or 27 per cent., were raised on cows' milk.

While these statistics represent conditions on the continent, the records of the Winyah Sanitarium at Asheville, N. C., show that 75 per cent. of tuberculous patients have positively stated that they had been breast fed, 15 per cent. could not make positive statements and 10 per cent. were raised on cow's milk.

Another discrepancy between Behring's theories and facts Biedert has remarked in the following: In the lower Pfalz district there are 182 head of cattle per 1,000 inhabitants, and according to meat inspection there are 1.5 per cent. of tuberculous cows. Here the mortality from tuberculosis is 35.9 per 10,000 inhabitants. In the upper Pfalz there are 314

head of cattle per 1,000 inhabitants and of tuberculous cows, 17.3 per cent. Here the mortality from tuberculosis is 29.1 per 10,000. Again, Tonzig cites the statistics of the city abattoir of Padua, which shows that bovine tuberculosis occurs with rarity. Yet, this city furnishes the greatest mortality of all Italian cities from tuberculosis with a remarkable frequency of intestinal tuberculosis. Carter says that the average mortality from tuberculosis in the city of Havana represents more than 21 per cent. of the total death rate, and yet raw cows' milk is never used in Havana.

In Sweden, where for generations nearly all mothers have nursed their children, we find a higher death rate among children from tuberculosis than in certain other countries where artificial feeding is frequently resorted to. Hirsch cites the comparative statistics for four countries as follows: Switzerland, 1.86; Prussia, 2.94; Norway, 2.21; Sweden, 3.5. According to Babes, tuberculosis is very prevalent in Roumania, where the children receive no cows' milk, and according to Arthur Meyer, in England, where milk is used raw much more than in Germany, the tuberculosis mortality is less than on the continent, although Ransome, Delepine, Boyce, and others have shown that milk contained tubercle bacilli in large numbers of the samples which they examined. On the other hand, in Sardinia and in Sicily where bovine tuberculosis, according to Dr. Vestea, is almost unknown, the tuberculosis of man causes a greater mortality than in England.

Dr. William S. Stowell states that at the New York Infants' Hospital, which has 2,500 patients, and which is supplied with milk from twenty-eight cows kept on the farm, that between the years 1903 and 1907, there were 4,537 patients, of whom 180 died; 18 of these died from tuberculosis, a mortality of 10 per cent., which is the same mortality as for the nation, and yet these children have been fed on tuberculous milk, for in 1903 two diseased animals were found and killed. In October, 1907, it was found that out of thirty cattle only three failed to respond from the tuberculin test. Comby, before the International Congress of Tuberculosis in 1905, made the emphatic statement that, from his observation, milk played no appreciable part in the spread of tuberculosis in children.

Sterilized milk is almost universally used for infant feeding in Paris, and while it has resulted in marked diminution in the death rate from intestinal diseases, yet the mortality from tuberculosis in children has increased. Holt found no cases of primary intestinal tuberculosis in 119 children dying from tuberculosis. Bovaird found two cases in 125 autopsies; Northrup, 3 in 125; Hand, 10 in 115 autopsies on tuberculous children.

Statistics from all sources show that tuberculosis is relatively rare in the first six months of life and that the greatest number of cases occur between the second and sixth year. If tuberculous milk is such a great source of danger, a greater number of cases would appear before the second year. Heymann tells us that in Greenland infants are almost exclusively breast-fed, and yet tuberculosis is so prevalent that it is easier

to name those who are free from it than to attempt to report the widespread presence of this disease. According to Cobb, tuberculosis in all its forms is the greatest scourge in China. Nevertheless, the use of milk as a food by the Chinese is so rare that one may practically say they do not use it. Very few cattle are raised by the Chinese and these are mostly used for ploughing.

Finally, we are informed by Shiga that bovine tuberculosis was unknown in Japan until thirty years ago, when foreign cattle were imported, and from Professor Asyama of Tokio, we learn that tuberculosis has been widely disseminated in Japan for centuries, in spite of the fact that few decades ago the feeding of nurslings has been only by the mothers' milk or that of wet nurses, for ritual and religious reasons. The people of Hindustan, like the other oriental races, do not use milk to any great extent, yet tuberculosis prevails there as elsewhere. In the Philippines milk is seldom used, and in Cuba and all the Spanish-American countries the milk is invariably boiled before using, yet we know they have tuberculosis. The Alaskan Indian has tuberculosis to a great and increasing extent, yet he does not use milk of any kind as an article of diet and cows' milk not at all. In the Islands of Jersey and Guernsey the cattle are free from tuberculosis, but the people of these islands do have tuberculosis just about as much as we should expect to find elsewhere under similar environments.

As to the frequency of which bovine bacilli occur in milk Delepine found virulent tubercle bacilli in 17.6 per cent. of a series of specimens collected in Manchester. Adami found bacilli in 60 per cent. of tuberculous cattle in which there was no lesion of the lacteal tract. Ravenel experimented with five cows with no physical signs of tuberculosis, but reacting to tuberculin, and later confirmed the diagnosis on autopsy. The milk of these cows was inoculated into guinea-pigs, of which number 18.7 per cent. became infected by a single dose of milk from cows having no disease of the udder. Rabinovitsch of Berlin obtained similar results.

It is difficult to state the exact frequency of tuberculosis in cattle, but as a general proposition it can be put down as being about 15 per cent. of the total number, therefore it can be readily seen that if all milk containing tubercle bacilli was capable of producing tuberculosis very few of us would escape.

We must conclude from the available evidence before us at present that experimental work strongly favors the view that the infection in pulmonary tuberculosis takes place, in the vast majority of instances, through the respiratory and not the alimentary tract. For the present we must continue to assume that inhalation tuberculosis is the common form of pulmonary tuberculosis, and we must continue to take precautions against its spread which experience has suggested and which practice has shown to be distinctly of value. This view does not, of course, imply that intestinal infection with the tubercle bacillus may not lead to pulmonary tuberculosis. There is good evidence that it occasionally

does, but there is a wide difference between the view that pulmonary tuberculosis is an occasional sequence of intestinal infection, and the belief that it is commonly of intestinal origin. The latter view and the light of present knowledge is untenable.

I repeat to-day what I said in my article (Jan. 24, 1900), and published in the March number of *Medicine*, namely, that while infection from milk and meat may be possible I believe it to be extremely infrequent, and that the chief means of communicating the disease, even in childhood, is by inspired air and that the greatest danger of contracting tuberculosis is not from meat and milk, but that the greatest source of contamination is from ourselves.

34 Washington Street.

TUBERCULOSIS OF THE KIDNEY.

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Our knowledge of renal diseases, particularly of the surgical type, has advanced to such a degree the last few years that the urologist stands upon much firmer ground in regard to etiology, diagnosis, treatment, and prognosis of these conditions. General tuberculosis is being studied the world over for the purpose of reducing mortality, naturally the urologist is interested to a great extent in renal tuberculosis. The cause of renal tuberculosis in every case is traceable to the invasion of renal tissue by the tubercle bacillus. Renal tuberculosis is practically always hematogenous in its origin, and is always unilateral at the start. Ninety-five per cent. of all cases of renal tuberculosis collected show the condition to be hematogenous, while the 5 per cent. is due to the extension of the lesion from the adjacent parts, as in the male from the testes, seminal vesicles, etc.

The condition in the kidney is always, as a rule, secondary to tuberculosis elsewhere in the body. Many times it will be difficult to exactly locate this lesion, for there may be no signs or symptoms. Renal tuberculosis may attack the organ primarily; it, however, is rare, for, according to Albarran, there are only five cases of primary tuberculosis of the kidney on record, where the autopsy showed no other tubercular lesion. Morris, on the other hand, says that primary tuberculosis of the kidney was found in ten cases out of 74 at the Middlesex Hospital. In nine out of this 74 only one kidney was involved. There is no doubt that tuberculosis of the kidney may be primary, but it is so seldom found that it need not be taken into consideration.

It is a fact beyond doubt that the lesion does occur unilaterally in a large proportion of cases, particularly is this noted in the early stages. Later in the disease, after all the well-known symptoms and signs are

in evidence, 50 per cent. of the cases are bilateral. Men are more apt to be affected than women, and it is not infrequently met with in young persons. The right kidney in adults, from statistics which I have gathered, seems to have been involved more often than the left. Two different types of tuberculosis of the renal tissue are miliary and caseating. The former is characterized by the presence of miliary tubercles scattered through the tissue of the kidney so that it may be seen on inspection of the organ, before it is opened, near the surface immediately beneath the capsule. Upon section of the organ they are frequently seen in the cortex in the shape of small whitish or yellowish spots.

The caseating form is characterized by the presence of grayish or yellowish cheesy nodules scattered throughout the substance of the kidney, which is usually enlarged and nodulated. During the course of the disease these cheesy masses become increased in size and open into the renal pelvis or under the fibrous capsule, which they may break through, forming a perinephritic abscess.

The cardinal symptoms of tuberculosis of the kidney are hemorrhage, pain, and frequency of urination. One of the first symptoms to show itself is that of frequency of urination, which occurs both diurnally and nocturnally. This frequently is due to the constant irritation of the kidney. In the later stages of the disease it may be so frequent at night that it interferes with sleep, making it very fatiguing to the patient. Pain is not, as a rule, a very prominent symptom, for it may be absent or it may be present to an acute degree. It may be recurrent in its attacks, resembling somewhat renal colic. This pain may be due to an occlusion of the ureter due to tubercular débris or blood clots. The patient may complain of a weakness or heaviness in the loin which is constantly present. There may be tenderness upon palpation, but this is not constantly present. Many times, as in other renal conditions, the symptoms may be referred to the bladder, or they may be referred to the opposite kidney, so it is necessary that a careful examination be resorted to to elicit the exact location of the pathological lesion. The examination of the patient shows him to be cachectic, and if the symptoms point more or less to the urinary tract then an examination of the urine is absolutely essential.

The amount of urine is usually increased in the early stages, and this polyuria may be constant or intermittent in character. In the later stages of the disease the amount of urine is very much decreased, owing sometimes to renal retention by a plugging of the ureters. The reaction of the urine is acid until late in the disease, when it becomes alkaline in reaction. Usually there is a diminution in the amount of chlorids, phosphites and urea. A moderate quantity of albumin may be found, and, as a rule, this does not become very abundant. The microscopic examination of the urine is the important feature of the examination, for a diagnosis depends almost entirely upon the urine findings. One must not be too hasty in the microscopic analysis. The hematuria shows itself by the presence of red blood globules either in large or small numbers,

and it is evident almost from the beginning of the infection. The bleeding may be so profuse that it will discolor the urine. Pus corpuscles are also evident in samples of tuberculous urine. There may be casts, both hyaline and granular, some epithelial, and pus with epithelia from the pelvis of the kidney and tubules. The tubercle bacilli must be found and demonstrated before an absolutely positive diagnosis can be reached. It must be borne in mind that the technique of the examination for tubercle bacilli must be carefully followed. One feature which I wish to emphasize in this regard is that the urine must be examined in a fresh state. If the tubercle bacilli is not found this time and tuberculosis of the kidney is suspected, a cystoscopic examination of the bladder, together with catheterization of the ureters with a collection of a specimen of urine from each of the kidneys is necessary, and an immediate microscopic examination of the two separate specimens must be made, and an examination for the purpose of detecting tubercle bacilli. By this method the possibility of mistaking the smegna bacillus for the tubercle bacillus may be discarded. In the ordinary bladder urine this mistake may be made, due to the fact that the smegna bacillus reacts to the same staining process as that for tubercle bacillus. It is rare that the tubercle bacilli will be overlooked if the examination be carried on in the manner cited. If proper attention be paid to the technique of cystoscopy and ureteral catheterization there need be no fear of carrying infection from the bladder to the kidneys. There are numerous conditions which may be mistaken for tuberculosis of the kidney, the most important of these being nephrolithiasis. In calculus there is a personal history of gout, rheumatism, lithemia, while in tuberculosis there may be a tuberculous history in the patient or his family; renal tuberculosis comes more rapidly, the patient is more cachectic, there is more constant hematuria and frequency of urination. The frequency may be noted at night as well as in the day. There is usually involvement of the uro-genital tract elsewhere in tuberculosis, or of the glands, joints, or lungs, and tubercle bacilli may be found in the urine. Tuberculous kidney may also be mistaken for tumor, or vice versa. In each of these conditions there is a marked cachexia. The age of the patient, however, is different, as tuberculosis usually occurs in young adults, in patients under fifty, while tumors of the renal tissue are more commonly found in patients of fifty or older. In tumor of the kidney hematuria is more marked and there is an absence of tubercle bacilli. The organ may be palpated more readily in tumor, for it is generally larger and more constantly large than in tuberculosis.

One of the most difficult conditions to differentiate from tuberculosis of the kidney is that of pyelonephritis due to an ascending infection. Here we have both the kidney and bladder involved, as is frequently the case in tuberculosis. Pain may be of the same character, the patient will probably run a mild temperature, and have night sweats from the septic condition. The kidney may be enlarged and tender on pressure, there may be loss of weight, loss of appetite, and emaciation, and the

urine contain pus, blood, casts, epithelia from the pelvis and kidney. The only method left for differentiation between renal tuberculosis and pyelonephritis is the cystoscope and microscope, particularly the latter. For the diagnosis depends upon finding the tubercle bacillus. A cystic kidney may be taken for tuberculosis, but it should be remembered that a cystic kidney is more liable to be enlarged, is easily outlined, and is more irregular than a tuberculous kidney, and a cystic kidney patient does not run the same constitutional symptoms that a tuberculous patient does.

Urinary analysis will clean up any doubt as to this point. The duration of an ordinary case of renal tuberculosis is about three years after the development and first well-marked symptoms, the patient dying of cachexia or uremia. In tubercular lesions of the kidney the cystoscopic picture of the bladder mucosa combined with the appearance of the ureteric orifices will give us important data, and will give us corroborative evidence as to the condition of the kidney.

Primary tuberculosis of the bladder is an unknown condition, the infection occurring secondarily either from the prostate, seminal vesicles, epididymis, or from the kidney due to a descending infection. So if there are evidences of tubercular lesion in the bladder, the source of the infection must be located elsewhere, the infection being in the prostate, seminal vesicles, or epididymis can easily be discarded if the symptoms and signs which point to this location are wanting.

A careful study of the cystoscopic appearance of the ureteric orifice will be necessary, and the following points of interest may be ascertained by this study.

(1) If the orifice on one side is abnormal in appearance, while that on the other is normal, then with a reasonable degree of certainty the renal lesion is on the side which shows the abnormal orifice. Many times the character of this deformity will be indicative of cause and extent of the pathological lesion in the kidney.

(2) Edema with an active congestion of the mucosa immediately surrounding the orifice, with pouting and swelling of the borders of the orifice, speaks for pelvic irritation of an acute type which may involve the parenchyma as well.

(3) Acute inflammation of the pelvis may produce congestion of the lips of the orifice which will be dilated. The extent of this dilatation and congestion is in proportion to the severity of the inflammatory process. The surrounding bladder mucosa will be practically normal in appearance.

(4) The lips of a dilated orifice being thickened and gaping slightly, the opening being dark red in color, the surrounding mucosa congested with redness along the line of the ureter as it passes through the bladder wall, denotes an inflammation of the ureter of a descending variety with dilatation.

(5) A recent distension of the pelvis of the kidney is shown by an elongated and dilated orifice with redness of the lips.

(6) A dilated orifice without thickening of the lips and without congestion denotes a mild mechanical irritation either of the pelvis or kidney.

(7) An orifice appearing like a hole, punched out in character, with induration and congestion of the contiguous mucosa, speaks for an ascending inflammation of the ureter with marked dilatation.

(8) A pin point orifice which opens in a mass of edematous tissue highly congested denotes a marked inflammatory condition of the ureter, complicated with a pelvic and bladder condition.

(9) A pin point opening with no changes in the surrounding mucosa, is usually due to spasmodic contraction caused by the passage of a calculus or blood clot.

(10) A slight inflammation of the opening with slight congestion of the surrounding mucosa with thickening of the lips, denotes a pyelitis which may be accompanied by a mild nephritis.

In tuberculosis of renal origin in which there has been a descension of infection along the ureter, changes which may be particularly noticed in the ureteric orifices are as follows:

(1) A "holing" of the orifice with the surrounding membranes showing evidences of marked inflammation, with the presence of tubercles together with the presence of tubercle bacilli in the urine, denotes, with a reasonable degree of certainty, a deposit of tubercle in the corresponding kidney.

(2) A ureter displaced, pulled away from its normal position by traction of the ureter, gives evidence of tuberculosis of the corresponding kidney.

Note.—In tuberculosis of the kidney the organ retracts under the ribs and thus drags on the ureter, the orifice therefore being pulled out of place.

(3) A marked edema of the ureteric lips and immediately surrounding mucosa, marked congestion with the presence of tubercles, may denote tuberculosis of the corresponding kidney.

Note.—The condition of edema of the ureteric lips and surrounding tissue is more characteristic, however, of the presence of calculus which may be lodged near or at the orifice.

There, however, may be no change whatever in the appearance of the ureteric orifice in grave cases of tuberculosis of the kidney and the diagnosis must be left to the microscopical findings.

There are some cases reported in literature of spontaneous recovery, but I do not believe that they are authentic. There are cases which may seem to be healed in spontaneously, but later it will break out in exaggerated form. There have been all kinds of methods of medical treatment recommended for tuberculosis of the kidney and I believe that it is the concensus of opinion that medical treatment will do little good. In a large percentage of cases, as has been shown, the condition is unilateral in the beginning and if recognized early enough, the diseased kidney may be removed or treated, thus giving the patient a longer lease of

life than he would gain under any outlined medical course of treatment. It must be ascertained, however, before a nephrotomy or nephrectomy is contemplated, the functional activity of the sound kidney. This may be ascertained by catheterization of the ureters, a collection of specimens from each kidney so that the amount of urine may be approximately tested coming from each kidney, together with the per cent. of urea, the amount of pus, blood, and inflammatory products contained in each specimen. At the same time the phloridzine and methylene blue test may be resorted to. Cryoscopy of the urine and blood of the patient may be performed.

From the results of the microscopic examination, the percentage of urea, from eryoscopy and from the phloridzine test, we are able to estimate the functional activity of the kidney. If the functional activity of the apparently sound or healthy kidney is found to be deficient a nephrectomy of the diseased kidney is absolutely contra-indicated. If the functional activity is decreased and in the judgment of the surgeon a nephrectomy is contra-indicated, then nephrotomy may be resorted to. The abscess cavity should be thoroughly opened and explored and the affected areas be curetted. The kidney should then be drained with rubber tube, gauze, or wicks. Nephrectomy is, no doubt, a more dangerous operation than nephrotomy, yet if the other kidney is capable of carrying on the work of the two, it is a better procedure to follow. In removing the kidney I do not think it is necessary to remove the ureter any more than I do the removal of the bladder when that viscus is affected with tubercular lesions. Early statistics regarding the mortality in nephrectomy in these cases is put as high as 40 per cent. to 45 per cent., but with the advent of the cystoscope and the methods of ascertaining the functional activity of the sound kidney, the operative mortality has been markedly decreased, and from statistics gathered recently it has been placed as low as 10 per cent. to 14 per cent. There are no statistics upon the mortality in these patients one year after the operation.

The postoperative treatment of nephrectomy is very important, as upon this many times depends the ultimate results of the operation. The patient should be placed in bed upon his back with the pillows so arranged that no pressure can be brought against the wound. This will allow free drainage and will prevent pain as far as possible. In septic cases the drainage should be carried out thoroughly, and the dressings changed frequently. An immediate after-treatment is the same as that in every major operation for the purpose of overcoming shock. This danger being over, that of suppression of the urine must be guarded against. The patient must be given large amounts of bland fluids, at first hot water and milk and alkaline mineral waters. Saline injections and transfusions, hot water packs, diaphoretics and purgatives if necessary. If there is suppression of the urine it may be necessary to catheterize the ureter on that side, and irrigate the pelvis of that kidney with hot boric acid solution to thus stimulate it to action. I have followed this procedure in one case with excellent results followed by min-

errupted recovery. The duration of the after-treatment is about three weeks. The prospects of quite a few years of health following a nephrectomy for tuberculosis is excellent if the condition has been unilateral. In nephrectomies life is extended from one to five years. If it is found that both kidneys are involved, and a nephrectomy upon the kidney which is more markedly diseased is contra-indicated, and there is a marked suppuration, then the medicinal treatment may be resorted to, consisting in out-door life, good nutritious food, pleasant surroundings, freedom from mental anxiety, together with the ordinary drugs which are given in tuberculosis of other organs.

Where there is marked suppuration, lavage of the kidney pelvis through the urethral catheter will no doubt be of some benefit and may lengthen the life of the patient. It has been shown that it is important to first accurately study the history of the patient, the cystoscopic and microscopic findings, and before giving a favorable or unfavorable prognosis, to exactly ascertain the functional activity of the supposedly healthy organ.

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THE PRACTICAL APPLICATION OF FOOD VALUES IN
EVERY-DAY PRACTICE IN THE NUTRITION OF
CHILDREN FROM THE AGE OF NINE
MONTHS TO PUBERTY.*

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During the quarter of a century that pediatrics has existed as a special branch of medicine, instead of an adjunct of obstetrics or general medicine, so much has been accomplished of practical value that, according to Holt's statistics, there has been a saving of twelve thousand lives of children under 5 years of age annually in New York City alone. This remarkable saving of life has been accomplished through a number of different lines of work; through a more accurate knowledge of the development of the digestive apparatus, what the needs of the growing child are, at what ages the various glands are ready to digest the various foodstuffs, and what food will best aid in the development of the child, and through a general better sanitary condition of living. A more complete knowledge of what the essentials are of a desirable food have led to this brilliant result perhaps more than any other one thing.

Bacteriology has taught the undesirability of unclean foods, milk especially, and one of the important achievements of the past ten years has been to provide a possible clean milk supply to the children of our large municipalities. It is still the endeavor to make the complete milk supply of cities clean. In the country and country towns, generally speaking, the requirements of an up-to-date dairy are unheard of, with the result that the country child gets wholesome or unwholesome milk ac-

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ording to the degree of neatness of the individual dairyman, who is subject to no inspection of his work or his herd. As milk is, for a time, the only food of infancy and is the basis of the baby's diet up to 2½ years of age, a great deal of work has been done on this one food. It is now possible to get certified milk in the large cities of our country and in many of the small cities; yet the cities where the complete milk supply to the community is good are astonishingly few when one thinks of the aid to preventive medicine clean milk is. The profession has done yeoman service in this line; the improvement of the quality of the milk supply to New York and Boston and most of their suburbs, and recently Chicago can be added to the list, is an earnest of what can be done and will be done in the future, while Rochester, N. Y., and Louisville, Ky., stand out as striking examples of the good work done in the smaller cities.

The study of the matter and energy of food in the body or metabolism was partially understood at least as early as the time of Sanctorius (in 1614), who taught that the body was a machine to which the principles of mechanical motion could be applied. Others worked on this theory, though nothing of lasting value was done until the nineteenth century. Liebig, in 1840, arrived at conclusions apparently intuitively that later work has proven correct. And in 1865-6 Fettenkofer and Voit published the results of their experiments with Pettekofer's newly invented respiration apparatus that are still regarded as classic. Since then there has been a mass of work done by scientists all over the world, especially by the Germans and Russians, on metabolism in man and animals that is of immense value to the clinician. In this country Flint began this line of investigation in 1873. Atwater and his school, under the U. S. Department of Agriculture, and with the aid of some of the state experiment stations, especially Maine, Connecticut, Minnesota, Illinois, Tennessee and California, has given the medical profession data that are simply invaluable as an aid to correct feeding.

The author wishes to make no claim to originality, but merely desires to put before you the clinical aid that she has had from a study of these metabolism experiments in prescribing dietaries for children in routine practice. The government reports available to all have been the basis of this study. The principles of good feeding demand that the needs of the body be met. The food must supply the elements that make up the body, that make it grow, that make it warm, that make it work. That these needs vary with the age is plain; the caloric value of the food requirement for a baby who of necessity makes few voluntary motions is much less than for the adult, yet it must have sufficient food value to grow, for every human being must gain in weight up to at least 16 to 19 years of age.

The demands of the body are for a certain quality and quantity of food elements and that these elements should bear a definite ratio to each other as they furnish to the body different powers or the same power in varying degrees. The five elements of nutrients required during infancy and childhood are the same as in adult life, proteid, fats, carbohydrates, mineral salts and water, but in the infant and child the form and relative

CLASSIFICATION AND NOMENCLATURE OF PULMONARY TUBERCULOSIS ADOPTED BY THE NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

<i>INCIPIENT</i>	{	<p>Slight initial lesion in the form of infiltration limited to the apex of one or both lungs or a small part of one lobe.</p> <p>No tuberculous complications. Slight or no constitutional symptoms (particularly including gastric or intestinal disturbance or rapid loss of weight).</p> <p>Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest.</p> <p>Expectoration usually small in amount or absent.</p> <p>Tubercle bacilli may be present or absent.</p>
<i>MODERATELY ADVANCED</i>	{	<p>No marked impairment of function, either local or constitutional.</p> <p>Localized consolidation moderate in extent, with little or no evidence of destruction of tissue;</p> <p>Or disseminated fibroid deposits.</p> <p>No serious complications.</p>
<i>FAR ADVANCED</i>	{	<p>Marked impairment of function, local and constitutional.</p> <p>Localized consolidation intense;</p> <p>Or disseminated areas of softening;</p> <p>Or serious complications.</p>

CLASSIFICATION OF RESULTS

<i>UNIMPROVED</i>	{	All essential symptoms and signs unabated or increased.
<i>IMPROVED</i>	{	Constitutional symptoms lessened or entirely absent; physical signs improved or unchanged; cough and expectoration with bacilli usually present.
<i>ARRESTED</i>	{	Absence of all constitutional symptoms; expectoration and bacilli may or may not be present; physical signs stationary or retrogressive; the foregoing conditions to have existed for at least two months.
<i>APPARENTLY CURED</i>	{	All constitutional symptoms and expectoration with bacilli present for a period of 3 months; the physical signs to be those of a healed lesion.
<i>CURED</i>	{	All constitutional symptoms and expectoration with bacilli absent for a period of two years under ordinary conditions of life.

quantities are different in order to meet the weaker digestive ability and to provide growth. The food must give the body material for the repair of waste to store up strength to supply energy and for growth.

If the body is not given the proper food elements in proper proportion and quantity to its weight, it is obliged to use its own tissue to carry on its economy, that is, it can use its own protein and fat as fuel. We see examples of this in the wasting fevers. The available energy of the food ingested is that made use of by the body minus the solid part of the excreta. This energy may be heat, or kinetic energy, muscular or nervous activity. The right exercise of development of the nervous organization, the sensibilities, the higher intellectual and spiritual faculties of the body as well as the physical well-being depend on right nutrition.

Protein is the foundation of all tissues of the body and has tissue building and repairing properties. It can also yield energy, though it is not economy to so use it. The fats yield energy both as heat and muscular work and are stored up in the body as a reserve for emergencies. The fuel value of fat is two and one-fourth times that of protein and carbohydrates. It is the most economical fuel for the body. On the other hand, fats are not as good protectors of the body material as the carbohydrates. Another source of energy and heat production is the carbohydrates, and they offer the body its best protection from self-combustion, and in sufficient quantities they add to the fat stored up in the body. The fuel value of protein and carbohydrates are about equal, but carbohydrates give more energy for muscular work. The mineral salts act with the proteids as tissue builders, and the fats and salts help to make bony material; more salts are required during childhood than in adult life, because of the needs of the skeleton. Salts aid in all growth and are constituents of the blood and digestive fluids and by their presence facilitate absorption, secretion and excretion.

Water forms 66 to 70 per cent. of the human body in infancy and childhood and is an essential nutrient. The infant requires five times as much water in proportion to its weight as does the adult; its function is to render the food elements soluble so as to make them more digestible and it promotes elimination.

The results of foreign and home investigators have been slightly different as to the quantities of the food elements required by the body. Atwater in this country, Voit in Germany and Playfair in England are experimenters whose work is largely quoted. The general opinion is that Americans eat too much food of all kinds and especially of fat, starch and sugar. Atwater gives the requirement of protein as .28 of a pound daily for an adult at moderate muscular labor, while Voit gives it as .26. The quantity of food required varies directly with the work done and somewhat with the individual. Women and children eat less than men doing the same amount of work.

Langworthy made out a series of figures to show the relative quantities of food required by adults and children. These figures are made in part from actual experiments and in part are arbitrary assumptions; at least they offer a fair idea of the amount of food required at different

ages in comparison with the adult standard. A child under 2 years requires 0.3 as much as an adult at moderate, active, muscular work.

A child from 2 to 5 years requires 0.4 as much as an adult.

A child from 6 to 9 years requires 0.5 as much as an adult.

A child from 10 to 12 years requires 0.6 as much as an adult.

A child from 12 to 14 years requires 0.7 as much as an adult.

A child from 15 to 16 years requires 0.8 as much as an adult.

The usual division of the life of the child into infancy—including the time from birth to the end of the first dentition or $2\frac{1}{2}$ years—and childhood—from $2\frac{1}{2}$ years to puberty—has been shortened in this paper by beginning, instead of at birth, at 9 months of age, that is, at the time when other foods than milk are demanded by the growing organism. This is a period in the life of the growing child when little attention has been paid to the diet, yet it is a period when, if the demands of the organism are not met, disaster in the form of disease or lack of proper development is sure to follow.

In studying the ability of the infant to digest between the ages of 9 months and $2\frac{1}{2}$ years, we must be guided largely by the development of the digestive apparatus, that is, the body requirements at that age. All the food elements demanded by adults can be digested by a new-born infant if given in the one food, milk, that contains them in the proper quantity, proportion and form. The salivary glands do not secrete ptyalin until the last of the first year of life, and its amyolytic function is not well developed until later—and even after this ferment is secreted it is largely wasted in druling until the child begins to chew at about 2 years—that is, the slight diastatic action of the saliva may be practically disregarded until the end of the first dentition at $2\frac{1}{2}$ years.

The stomach at 9 months has a capacity of from six and a half to eight ounces and is provided with similar but weaker digestive ability than the adult organ. The liver through infancy and childhood is larger in proportion to the size of the body than in adults. The pancreatic juice has only slight amyolytic power and slight ability to digest fats until the end of the first year. The intestines are longer proportionally in childhood than in adult life; in adult life the ratio of length is 1:5, in childhood 1:6 or 1:8, and the lymphatic system is highly developed and more active than in later life. The greater proportional size and activity of much of the digestive apparatus of infancy is to meet the need of greater metabolism required by growth. The difference, if any, of the action of the tissue ferments in adult and childhood digestion is not clear; that these ferments may either build up or break down according to the conditions in which they act is quite sure, and that ultimate digestion is to break up food proteids into other simpler forms of protein and to reconstruct them into forms usable by the highly diversified tissues of the body and that this process is carried on in the tissues and not by the digestive tract is known. The functions of the so-called digestive tract are well put by Webster, who says: "The stomach and intestines are the guardians of the metabolic well-being of the system. No normal metabolism can be maintained without their cooperation."

The effect of the ductless glands on metabolism is very certain, though the mode of working is little understood. In childhood the thymus exerts the greatest influence, no child can attain normal mental development without its aid, and anatomically it is known to be the largest in size at the end of the second year; on adult metabolism it apparently has little or no effect, as it usually shrivels up and disappears. The thyroid, next to the thymus, exerts the greatest influence on infant and childhood metabolism. The suprarenal bodies exert the least influence during the growth and the most during adult life.

In making out dietaries for infants and children, to apply what is known of the demands of the body at different ages, and what is known of foodstuffs and their metabolism, seems labored and impractical, but the immense amount of work done on nutrition and metabolism has given data on which to base principles of feeding. These principles are not fixed and certain, yet are at present our safest guide for dietary studies. The ration that offers just enough nutritive elements not to starve or overburden the body and to provide for its growth is the best ration. It is possible to starve the body of a child on a bulky diet of cellulose and starch that lacks the proper proportion of nutrient elements and to overburden the economy with a small but hearty diet of proteids and sugars. No dietary will be satisfactory to physician or little patient that does not take careful note of individual idiosyncrasies, nor will it be followed by a child unless palatable to him.

The data on which we have to depend in prescribing food for children are as follows: The proportion of animal to vegetable food should be as 1:22 to 2 and the proportion of nitrogenous foods to non-nitrogenous is as 1:4 or 1:5, and of the protein given at least 50 per cent. should be of animal origin, because it is more easily digested. The caloric demand of the individual is in proportion to each kilogram of weight or approximately to the age, and to meet this caloric demand certain proportions and quantities of the nutrient elements are required. One gram of fat produces 9.3 calories, 1 gram of carbohydrates produces 4.1 calories, 1 gram of proteid produces 4.1 calories, that is, each gram of proteid and carbohydrates has an equal caloric value, while fat has nearly a double caloric value. For instance, a baby 9 months old should weigh about seventeen pounds, or 7.7 kilograms. The average infant in health needs 100 calories to each kilogram of weight; that is, the 9-months baby should demand 770 calories daily or, in terms of food, mother's milk has a caloric value of 650 per liter, cow's milk has practically the same value. By giving the child one and one-sixth liters of milk his demands would be satisfied, but we know by experience that at nine months a child should be fed on other nutrients than the form of those found in milk to produce the best development; that is, less than a liter of milk should be given and the diet broadened by the addition of other foods, such as gruels made from oatmeal, barley or granum. To these can be added salt, a little cane sugar and cream, both to make them more palatable and of higher food value.

The cereals and sugar give a higher per cent. of carbohydrates which furnish the energy for the increased muscular work of the baby. The fat of the cream with the carbohydrates meets the heat demand and the small amount of vegetable proteid in the cereals aids the animal proteid of the milk and is not sufficient in amount to be too difficult to digest. A child a year old should have the caloric value of his diet increased by giving an ounce of beef juice daily or one-half of one egg, soft boiled, and fruit should be added to the menu, such as orange juice, prune juice and pulp and baked apple. Weaning should be begun at the tenth month, carried on gradually and accomplished by the twelfth month; plain whole milk should be the basis of the diet from this time on till the end of childhood. It should be borne in mind that if the infant is fed on cow's milk instead of human milk that beef juice should be added to the diet later because of the high proteid content of the cow's milk.

Up to 2½ years the caloric value of the diet should be 1,200—with a proportion of proteid 68 grams, fat 66 grams and carbohydrates 78 grams, the proteids and fats being about equal and the carbohydrates more abundant. The following dietary for one day for 2½ years is given simply as a guide for foods:

One ounce of oatmeal with sugar and cream, furnishing	320 C.
One egg, furnishing	80 C.
Two ounces of bread, furnishing	150 C.
One liter of milk, furnishing	650 C.

1,200 C.

Variety can be made by giving chicken, beef or mutton instead of egg. The bread can be prepared as Zwiebach or toast, arrowroot, baked potato, or well-cooked rice can be added. The cereal may be changed to suit the individual taste. There are certainly enough breakfast foods on the market to choose from. Most of them are clean preparations of the food value of that grain from which they are made. The wheat cereals have a more easily digested form of protein than the oat and the oat than the corn, and the corn products give more energy than the others. Toward the end of this period green vegetables should gradually be added to the diet. Care should be used in adding vegetables rich in protein, because vegetable protein is not so easily digested as animal protein, because it is enclosed in cell walls, that are hard and prevent absorption, and vegetable food is more prone to cause intestinal fermentation, hence increases peristalsis and hastens food through the bowels before it is fully acted on by the digestive juices, and cellulose itself acts as a local irritant, causing increased peristalsis. It is for these reasons that vegetable proteids are valuable additions to the dietary of children suffering from constipation.

From two and a half years to seven years the caloric demand of the body increases up to 2,060. The proportion of the proteids required to produce this value is ninety-five grams, of the fats ninety-two grams, and the carbohydrates one hundred and ninety-eight grams. The proteid and

fat demands are practically the same proportion to each other as in a younger child.

As a guide dietary for one day for a child of seven years the following is given:

	Proteid.	Carbohydrate.	Fat.	Calories.
Oatmeal with milk.....	25	13.5	1	75
Egg	13	..	11	155
Zwiebach	9	76	1.5	363
Roast beef	30	..	7	191
Potato	4	15	6.5	178
Green peas	6	12	..	74
Baked apple	4.2	26	1.5	138
Chocolate	1.5	6	1.5	45
Rolls	7	50	0.5	238
Milk, 1 litre.....	18	29	53	500
Butter .....	..	..	10	100
	92.7	217.5	93.5	2061

The caloric demand of childhood increases gradually up to 2,554 calories at fourteen years. The daily proportion of proteids in grams should be 85.5 grams; of fats 82.1 and the carbohydrates 271 grams. The fats in proportion to the proteids are slightly less and the carbohydrates have risen from twice the amount of each of the other elements to three times as much. The total quantity of the fats and proteids is slightly lessened. The child can digest and assimilate more elaborate forms and quantities of the food elements than the infant. Such as the vegetable proteins in green peas and beans as well as in the dried legumes if well cooked. The animal proteids should still be in excess; this is easily accomplished by keeping milk as a part of the dietary up to puberty; it is an economical as well as adequate food. There are a few individuals with whom milk does not agree; these comprise, fortunately, a small class, but such children are very hard to feed because of the difficulty in keeping up the amount of protein and fat in the diet. The carbohydrate content of childhood's dietary is the easiest to furnish because of the great variety, and of an apparently normal craving in children for one of the chief carbohydrates, sugar. Children, because of their activity, need a carbohydrate easily digested and rapidly assimilated, qualities that sugar possesses more than does starch, though as a food stuff for muscular work sugar has no advantage over starch if there is time for the digestion of the latter and its assimilation. Sugar, two hours after ingestion, will give a gram in muscular power and delay fatigue. Sugar also will furnish fat to be stored in the body; that is one of the essentials in childhood and offers many heat units—a child loses more heat from the skin for every pound of body weight than an adult, so needs more food offering heat units, also fatty foods that an adult uses for heat units are usually disliked by children and sugar makes a palatable substitute, but if given in too concentrated a form or in too great quantities a part is excreted unchanged and the unnatural tax on the excretory organs end in disease. If too large quantities of sugar are given the absorption through the intestines is greater than the liver can assimilate and store up, also too much sweet ferments easily in the stomach and intestines. The time-honored lunch of bread and butter and sugar

meets the demands of the growing child with every nutrient, and for lunches that and milk are not to be excelled. The syrups made from cane sugar and maple sugar are good additions to the dietary. Those made from glucose are more easily assimilated than sugar, so can easily overburden the liver; in a small quantity they are valuable. When the child is no longer on liquid diet he needs more water in his menu, as water is an essential diluent for food and for the digestive secretions of the stomach and intestines, as well as the tissue ferments.

The physician of to-day is often consulted about the dietary of healthy infants, but he has rarely the opportunity of prescribing a diet for healthy children. In the interests of preventive medicine it is to be hoped that that opportunity will be a part of the routine practice of the future. Already work along this line has been done in the endeavor to improve the dietaries of school children, and lists of dietaries are given in our literature on pediatrics. Dr. Somerfield, in Pfaundler and Schlofsmann's new book, has worked out more elaborate tables with the proper proportions of the nutrient elements adapted to different ages than other authorities. He has used colored plates, after Gørgensen's new method, to show at a glance the proportions of nutrients of most of the foods in general use for childhood. If doctors could have such plates on their desks it would not be long until each one of us could prescribe the proper dose of protein, fat and carbohydrate as well as the doses of drugs, and with more brilliant results to our patients.

In healthy children the diet has for countless generations taken care of itself. For the delicate and sick child the diet is of vital importance. A general rule in illness is that the food should be given in small quantities and often; there is one exception to this and that is air, for the oxygen of the air is an essential food which should be given fresh, in large quantities and all the time. In illness physical and mental rest should be insisted on, as all food can thus be better digested. In acute febrile cases in childhood milk is the ideal food; it may be supplemented by gruels and broths, fruit juices with egg albumin and water in large quantities.

In tuberculosis, rachitis, marasmus and the wasting diseases concentrated foods of easy digestion are required, as milk, cream, olive oil, beef, mutton, eggs, bread, potatoes and oat cereals, because of their high protein value; a diet lacking in protein will cause anemia, a fact to be borne in mind when prescribing a dietary for a patient suffering from a disease causing anemia. Lavage is sometimes necessary. I have had good results with this method when there was an absolute lack of appetite in rachitis, using milk and beef juice for the meal. In prescribing for constipation the bulky foods containing cellulose should be given—fruits, on account of their cellulose and salts, and large amounts of water. In cases of vomiting, when rectal alimentation has to be relied on, white of egg and peptonized milk are the best nutrients.

In infancy, in gastrointestinal troubles milk should be omitted for a time; gruels, broths, egg albumen are to be substituted, and in convalescence whey and junket should be given before plain milk is a safe

article of diet. Convalescents demand more than normal children. The food must not only repair the waste made by the disease but provide for growth. Generally speaking, in acute disease the nutrient elements and the calories should be slightly lessened and the form of the nutrients should be diluted.

In chronic disease the nutrients and calories should be kept at the full standard or slightly above. In convalescence the nutrients and calories should be increased—a convalescent child may demand even as much as an adult.

When as much study and attention has been put on the diet of children over nine months of age as has been expended on children under nine months, another great advance not only in life saving for children will have been accomplished, but in better developed and healthier bodies and minds for the adult.

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THE OPHTHALMOSCOPE IN GENERAL PRACTICE.*

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DECATUR, ILL.

Methods of physical examination, chemical and bacteriological investigation and the use of the microscope, have all revealed facts which have proved to be of the greatest value to the science of medicine. Indeed, to neglect these aids nowadays is to court disaster. The older physicians, it is true, attained great skill in arriving at correct diagnoses from the symptoms and the general condition of the patient, by the unceasing devotion to careful clinical observation. But while such studies are not in any way less essential to-day, they can be considerably aided by more exact methods of investigation. Among the means by which the extension of the study of objective evidences of disease has been rendered possible, the ophthalmoscope claims a position of prominence. It allows

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the observer to actually see, in the fundus oculi of the patient, the peripheral termination of one of the cranial nerves, as well as a complete scheme of distribution of an artery and vein, and a number of other complex and highly organized tissues. The clinical information gained is direct and first hand, for it depends upon the immediate sense perception of the observer. The nervous, vascular and other tissues which the fundus displays to the eye of the physician are, of course, subject to the pathological changes common to the tissues to which they severally belong; however, whilst these changes, more particularly in their development, are in other parts of the body appreciated for clinical purposes with difficulty and only indirectly by the signs and symptoms they produce, they are in the fundus displayed for direct inspection. The ophthalmoscope is therefore much more than an instrument for the detection of local disease. It gives an opportunity for the direct scrutiny of certain parts of the nervous and vascular systems, and detecting there changes that may mean some generalized pathological condition, localized disease of the brain or of some remote part of the body.

For these reasons ophthalmoscopic examination of the eye-ground is one of the most important methods of medical examination. Unfortunately it is somewhat difficult. This is partly because the familiarity with the technic of the ophthalmoscope, necessary for obtaining a clear image of the fundus, requires a certain amount of training and practice; and partly because the correct interpretation of the ophthalmoscopic image is often a difficult matter. However, this can all be overcome with a little practice and patience. As with any other instrument, the more one uses it, the more dextrous one becomes, and to become expert one should use it in every case. Cultivate it as a matter of routine. Consider the examination of each case incomplete until you have had a glimpse at the fundus. It only takes a moment. A mydriatic is rarely necessary. Have a good ophthalmoscope, a well shaded room, a lamp and the patient, and a very satisfactory examination can be made in a large majority of cases. If this is not possible, it is quite possible, and indeed essential, that the practitioner should be aware of the extent, as well as the limitation of the knowledge gained by the use of this instrument, and the aid it may offer in the recognition of disease.

The ophthalmoscope should be of good make, and for the use I am now considering, I have found the Morton instrument the best. This instrument, being long and narrow, gives better opportunity for closer examination without the patient's nose interfering, and this becomes important when a mydriatic is not used. The mirror on the Morton instrument can be turned at any angle, and this, too, is of importance when examining patients in the recumbent position, or when the source of light is not most convenient.

The source of light for the illumination of the fundus may be an ordinary lamp or even a candle. I have found the Albol diagnostic lamp, with slight modification, most satisfactory for the sick room.

As far as possible the use of mydriatics should be avoided; not only are they unnecessary, but, in addition, they cause the patient incon-

venience; their use also means a waste of time, and in elderly patients they carry definite risk of glaucoma. Atropin should never be used, but in exceptional cases in which the pupil is so small that an inspection of all parts of the fundus is impossible, small gelatin discs of homatropin, with cocain, 1/150 grain of each, are most satisfactory, the paralysis of accommodation generally lasting less than 24 hours. A dark room is by no means necessary. Drawing the blinds of the sick room will give quite a sufficient degree of darkness. In cases of severe illness this, obviously, may be the only available method.

Time will only allow me to indicate the conditions met with in medical practice, where the ophthalmoscope can lend aid to the physician.

First in importance, is the aid it sometimes gives in differentiating between organic and functional disease. An optic atrophy or neuritis tells us immediately that we are dealing with organic disease, however hysterical or neurasthenic the general symptoms of the patient may be. Disturbance of sight is common enough in hysteria, but optic atrophy necessarily means something more than functional disturbance, and cannot be due to hysteria. In the diagnosis of cerebral tumor, the ophthalmoscope performs a welcome function, for with headache and vomiting, or other obviously cerebral symptoms, an optic neuritis or choked disc discovered, causes the case to pass out of the region of probability into that of practical certainty.

In meningitis we may get a neuritis, but it is unusual. In the tuberculous form or generalized tuberculosis I have never seen the tubercles in the chorioid. In renal disease we have a great help in the ophthalmoscope. Albumin may be absent from the urine and still there be a typical albuminuric retinitis. This is seen sometimes in chronic interstitial nephritis. Even if the urine does tell the story, a known retinitis is of great prognostic value, for a retinitis in renal disease means the outlook is bad, these patients rarely living two years. The eye men send us cases again and again having suspected the kidney trouble from the eye alone. In diabetes the retinal changes are late and may be similar to those of nephritis.

In tabes, optic atrophy may be the first symptom of the disease and the chief practical value of its recognition is found in those cases where the spinal symptoms are slight and ill defined. It has some prognostic value in that early optic atrophy generally means that the spinal symptoms are delayed. In disseminated sclerosis we know what difficulty there is in distinguishing this disease from functional disturbance. Hysteria is capable not only of mimicking every objective symptom, but sometimes is associated with it in the same patient. An optic atrophy here would be a decisive factor in the diagnosis, for it would be evident that the disease had an organic basis.

Paresis is another disease, the earliest symptoms of which are usually purely functional, and a differential diagnosis is at times attended with great difficulty. If, therefore, an objective sign in the eye can be determined, a vast assistance is given to the problem.

Pernicious anemia is suggested when, with the general evidence of anemia, hemorrhages are found in the retina. The fact is of much diagnostic value, as such a condition is present in a majority of cases, and when found should stimulate further search for the pathognomonic sign in the blood, the megaloblast. Valuable evidence of the activity of the syphilitic poison, perhaps at a long prior date, can be obtained by the use of the ophthalmoscope. This is in the shape of patches of chorioidal atrophy, each surrounded by a border of pigment; or there may be a diffuse retinitis with fine dust-like pigmentation; or fine opacities may be found in the vitreous. This is all of importance when we know the difficulty of obtaining specific history when many years have passed since the date of primary infection.

It would be easily possible to produce clinical records to substantiate the value of the ophthalmoscope in the above diseases indicated, and indeed also in many other diseases; but to attempt these ends would occupy too much of your time, and is outside of the purpose of this paper. The aim is rather to draw attention to an aid in diagnosis, which has not had the importance it deserves, and one which we cannot afford to neglect.

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SUBJECTIVE SENSATIONS OF SMELL AND THEIR SIGNIFICANCE.*

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One of the interesting symptoms that has not received its full share of recognition at the hands of the rhinologist is the subjective sensation of smell, or parosmia, as it is most generally referred to in the American and English literature. The Continental writers, however, designate it by other names. Hajek¹¹ refers to it as kakosmic, Chiari⁴ as kakosmie subjectiva, Vierordt⁴⁰ as osmic paresthesia, and Parker²¹ calls it cacasmia. The definition of this symptom differs, depending on the conception the author may have of its pathogenesis. Kyle¹⁸ affirms that it is a perversion of the sense of smell superimposed on an otherwise abnormal function, whereas Gould⁷ defines it as a hallucination of smell which is usually unpleasant. Hajek¹⁶ objects to the classification of this symptom as a hallucination because, he says, it will be shown to be due in almost, if not all cases, to a definite pathological change which will account for this perverted function. To this view the writer also subscribes; a study of the literature and clinical experience confirms this opinion.

Etiologically, the causes producing this symptom fall into groups as follows:

I. EXTRANASAL.

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| 1. Anatomic changes. | 3. Drug poisonings. |
| 2. Infections. | 4. Neuroses. |

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II. INTRANASAL.

1. Foreign bodies in the nose.
2. Changes in the mucous membrane.
3. Changes in the bone.
4. Sinus disease. (a) Acute. (b) Chronic, a, open; b, closed.

Anatomic changes are varied and numerous. Trauma may affect the olfactory nerves and so give rise to parosmia. This is especially true of fractures of the base of the skull. Koenig¹⁶ records that he found this symptom three times in about 100 fractures of this region. Injury to the vault may also produce dislocation or tearing of the nerve. Tresilian³⁷ relates a case of a woman of 22 who fell from a trap, her head striking the ground. She was unconscious for a few hours, then dazed and had a severe headache and pain down the back of her neck for some days afterward. She could neither taste nor smell. The sense of taste returned in a short time, but her sense of smell had been lost and she was always conscious of a nasty subjective sensation of smell like bad hops, which was equal in both nostrils. Tests showed the fifth nerve uninjured; the eyes were negative; treatment unavailing, so Tresilian assumes the condition must have been due to injury to the olfactory bulbs, with laceration and perhaps partial separation.

Tumors of the gyrus hippocampus and gyrus uncinatus and lesions of the anterior temporal lobe also cause subjective sensation of smell. Thomson,³⁸ Osler,²⁹ Wood,⁴¹ Kirk,^{15a} Infectious diseases may cause a neuritis of the olfactory nerve. Zwaardemaker, Frankle-Hechwart⁵ and Tilley³⁶ all note changes in the sense of smell which can only be ascribed to an inflammation of the olfactory nerves. The disease causing this disturbance, more than any other, is influenza. Onedi and Tilley have each given the history of such a case. Drug poisonings occasionally produce parosmia. Lennox-Browne² notes that it may be an occasional symptom of lead poisoning, and Rose,³² in his classic work on the pharmacology of santonine, states that this symptom occurred sometimes when large doses of that drug were ingested.

The neuroses form an interesting group, the best known of which is the aura of epilepsy, first described by Jackson,¹³ in 1866, and since that time it has been considered one of the classic symptoms of this disease, and one would suppose from the literature and text-books that it occurs in almost every case of this affliction. This, however, is incorrect. Gowers⁸ found that out of 274 cases of true epilepsy, sensations of smell preceded the fit in only 12 cases. In most of the cases the sensation was unpleasant. One patient described it as an odor like "matter"; others compared it to gas and sulphur. The smell of gas of some kind is sometimes so strong that it seems to pervade the head and even the whole body. Spratling³⁵ described the case of a male epileptic who nearly always had an aura which he described as a snuff of bad air; the fit appeared after two or three inspirations that were charged with this disagreeable odor.

Parosmia may be one of the first symptoms of insanity. The patients

complain of being exposed to the most noxious odors and sometimes insist that their food is mixed with fetid or fecal matter. Kraft-Ebing¹⁷ mentions this as one of the symptoms of sexual paranoia, and Hall¹⁰ has pointed out that it occurs also in sexual neurasthenia. Climacteric neuroses (Tilley³⁶) frequently give rise to this perversion of the sense of smell, and it is also frequently of hysterical origin, Beyer,¹ Vierodt,⁴⁰ of which the following case of Miss B. S. is an example: A saleslady, aged 20, presented herself with the complaint that she had a headache and a peculiar subjective odor resembling burning straw. Examination of the nose showed nothing abnormal. The antra of Highmore were punctured on successive days with a negative result. A few days after the puncture the patient reported that the odor had gone. The case was referred to Dr. D'O. Hecht for an opinion, who reported hysteria with headache (migrainous).

Munger²⁴ reports a very peculiar case, in which the subjective odor was pleasant. A man of 50, a generous liver, was a sufferer from headache, and was overpowered by a persistent odor which he described as "heliotrope." All his odor perceptions were the same heliotrope. The parosmia came on gradually and gradually disappeared. The nose was free from any pathological condition. To account for this peculiar condition, Munger says, arteriosclerosis was present to a marked degree, which must have involved the olfactory bulb, affecting its nutrition primarily and its function secondarily.

The second division of the subject relates to the intranasal causes of parosmia, and includes all factors in the nose itself and its accessory cavities. Foreign bodies in the nose may be various and may cause the symptom under discussion if they produce suppuration or a disturbance in the mucous membrane. Killian¹⁵ reports two very interesting cases of parosmia caused by fetid plug in Rosenmuller's fossa, which, when removed, caused the subjective odor to disappear. Aside from foreign bodies, etc., the glands of the mucous membrane may produce secretions which give rise to subjective offensive odor. This may be constant or interrupted. La Coarret's¹⁹ case of a patient who at stated intervals had a subjective bad odor and who was cured by regular nasal massage is an instance of this class of causes. Hypertrophic rhinitis also comes in for its share of attention. The parosmia of these cases, as reported in the literature, usually follows a coryza. Noquet²⁶ reports a peculiar case, of a man of 54, who, after a coryza, when eating, developed parosmia. The patient was in no other way sick or nervous. Examination revealed a hypertrophic mucous membrane of the middle turbinal, which was in contact with the septum. After destruction of the hypertrophy with the cautery the odor disappeared.

Chappell³ and Onodi²⁸ each report a case in which the inferior turbinate was involved. Onodi's case was a man of 37, who developed an acute coryza which lasted a long time and renewed itself often. The coryza was accompanied by much secretion, the patient using eighteen handkerchiefs per day. In addition, there developed an erysipelas of the

face and parosmia. The patient smelled musk, petroleum and urine. No other findings in the nose than a chronic catarrh of the mucous membrane, evidenced by a large, swollen inferior turbinate. The latter was cauterized and the catarrh treated. The result was very gratifying. The odor disappeared and the patient was cured. Onodi adds that in this case the odor was due to peripheral irritation. The therapy is the proof. Since the cases follow coryza, one may be led to believe that they have had to deal with an acute ethmoiditis, which may also give us the kakosmie, the odor of burning straw, etc., which are not infrequently noted in these cases (Uffenorde²⁹). Parosmia is noted in almost all cases of acute sinusitis of the antrum of Highmore and many times by those suffering with the chronic form of this disease of the open variety.

The foregoing is of interest, but much more so is the chronic sinusitis, which shows this nasal symptom only, or in which it is a very prominent symptom. Ziem,⁴³ in 1888, reported cases of parosmia that were called "hysterical," but which he showed to be suppurations of the antrum of Highmore. Moldenhauer,²⁵ in 1886, wrote of cases of this kind, as did Lichtwitz-Jeanty,²¹ in 1891, and Moure,²³ in 1899. Zarniko⁴² wrote at a later date, that he believes the large percentage of parosmia to be due to closed accessory sinus disease, and to strengthen this opinion he reports four cases that other physicians have held to be either hysteria or hypochondriasis. In all four of his cases puncture of the antrum revealed pus, and he recommends this procedure in all cases of parosmia. Chiari⁴ also takes this view, and says the odor is noted by the patients from time to time, and especially when pus is discharged from the ostium maxillare. Hajek¹¹ expresses himself as follows: "Typical are the falsely designated hallucinations of the sense of smell in the sinus suppurations. The disturbance so manifests itself that the afflicted one from time to time, without any warning, perceives an odor in the nose. These are latent empyemata (especially of the antrum of Highmore and the ethmoid labyrinth) which go on for years without any other symptoms than the odor hallucinations."

Four cases in point I wish to relate.

CASE I.—O. O. Occupation that of a professor and lecturer; aged 62; of spare habit, but very active. The only illness he remembers are several attacks of influenza during the last ten years, but not until the last two years has he noticed that on the least exposure he would take cold, which was manifested by a coryza and later by a slight bronchitis. During the last year he suffered from a continual tickling in the throat and a hacking cough, most troublesome in the morning, during the night, and which when he attempted to talk for a long period became almost unbearable. He was at times compelled to shorten his lectures in order that he might recover. This cough and tickling were accompanied by a hydrorrhœa (which varied in intensity from time to time), sneezing and a distinct parosmia. Various diagnoses were suggested in the course of his treatment; one called it a nerve cough; another, follicular pharyngitis, for which the follicles of his pharynx were cauterized. He was sent to Mackinac for his supposed hay fever. I saw him during September, 1906.

The examination showed a hypertrophic rhinitis on both sides, with a fair breathing space on the right. The only obstruction other than the rhinitis was a spur of the septum. The left side was almost totally occluded and hanging

from the middle turbinate were two medium-sized polypi of the mucous variety. No pus was visible in either side of the nose; even after repeated examinations none could be detected in either meatus. Transillumination was negative, as was the examination under cocain and adrenalin on four successive days. In spite of the findings, because of the persistence of the parosmia, the left antrum was punctured. The washings showed a large quantity of thick, flaky, stinking pus. This odor coincided with that of the subjective sensation. After the third washing the subjective odor disappeared, and there was a noticeable improvement in the laryngeal and the pharyngeal symptoms.

CASE 2.—F. W., male, aged 41, painter by occupation. Has suffered during the last ten years from two attacks of influenza. He also had pneumonia of the lobar variety, and in 1904 took one of the cures for inebriety. Following the last attack of the influenza the patient has been haunted during all of his waking hours by the sense of an awful stench in his nose. So bad has this been that he has been practically unable to work. He consulted all the general clinics in the city, especially the neurologic departments, where, according to his statements, his case was diagnosed as hysteria.

The examination shows a man of large bone and fairly well nourished. Neurotic temperament, very talkative, and fearful of pain. The nose shows a slightly deflected septum to the left. A slight hypertrophy of both turbinates on the left side. The right side shows considerable hypertrophy of both turbinates. Posterior rhinoscopy shows both posterior ends enlarged, the right more than the left. The vault of the pharynx is free. The pharynx somewhat injected; the follicles prominent. The larynx false cords somewhat hyperemic, and the true cords a pale pink, somewhat thickened. The trachea shows also some redness, the segments being only outlined. No pus could be seen anywhere in the nose or nasopharynx. The patient complained only of occasional cough, and his voice was somewhat harsh and grating. The nose was cocainized and adrenalinized twice at an interval of a week, and examined for pus or crusts, but the examination each time was negative. Transillumination showed a slightly darker shadow on the right side than the left. The patient, after much persuasion, finally allowed the puncture of his right antrum, and we were fortunate enough to find a fair quantity of yellow, curdy, stinking pus, which corresponded to the subjective odor. I was able to wash the antrum twice more, and then the patient disappeared, because an operation for permanent drainage was suggested.

CASE 3.—Mrs. S., mother of two children, aged 37. Gives no history of any infectious disease, except those of childhood. Has had an occasional toothache, the right upper molars having been especially affected. Complains of a constant headache, which is principally frontal; pain has been constant during the last year, but not severe. The nose is occluded on both sides. The patient has a cough, more intense in the morning, and stops as the day advances. Lately has complained of a burning sensation in the pharynx and a feeling as though there is sand in the throat, parosmia for the last six months constantly; before this time, for about four months, only noted in the morning on arising. Says the odor resembles burning straw. The headache has disturbed the patient more than the parosmia, which she thought was the odor from the neighborhood in which she lives. The patient had occasional "fits," which her attending physician reports were purely hysterical. Her headaches were thought not to exist, and were only an excuse to come to the dispensary and visit with her friends. She had been examined by a rhinologist a year ago, who prescribed a spray and a cathartic. She used the spray three times a day as directed and the cathartic when needed. This examination was before the parosmia developed.

Examination shows a woman of medium height, phlegmatic disposition, and with an air of depression. The nose shows a slightly deflected septum to the left. The left hypertrophic inferior turbinate and the anterior end of the middle turbinate occluding the anterior portion of the olfactory fissure, impinging very closely on the septum. The right side—shows polypi and the inferior turbinate

hypertrophied. Posterior rhinoscopy shows enlarged posterior ends on both sides, but no pus noted. Pharyngitis lateralis and slight injection of the posterior pharyngeal wall. Larynx and trachea negative. Transillumination negative.

Removed the polypi (five) from the right side, and the enlarged anterior end from the left. This procedure caused some diminution of the headache, but the parosmia still persisted, and also a "dull feeling in the head." Puncture of the left antrum of Highmore was negative, but the right side revealed a small amount of flaky pus. After the washing the odor disappeared from the nose; as did the headache. This condition would last five or six days after the washing, when the headache would return coincidentally with the parosmia. After four washings had shown the failure to produce a cure, I resected the anterior end of the right inferior turbinate; made an opening in the antrum for drainage. Since the operation (Jan. 17, 1907), there has been no odor or headache.

CASE 4.—Female, of 35; mother of two children. Was sent with word that she had consulted a neurologist, and had been examined by a rhinologist, both of whom found nothing, and said that in all probability the woman was insane, since she persisted that she always had the odor of burning meat in her nose. She could not be argued out of her delusion, and the more she was told that it was imagination on her part, she became violently demonstrative, and then would suddenly begin to cry, because she claimed no one appreciated her, and no one believed her. Disease of childhood; one attack of influenza six years ago (1901); about two years ago contracted a cold, which was followed by neuralgia of the face on the left side, which lasted for a week, then gradually improved. Patient noted at the time that when she blew her nose, there came a large volume of yellowish mucus. About eighteen months ago the odor of burning meat appeared, at first noticed in the morning, then during the whole day.

The examination shows a woman of large habit, flabby muscles, flushed face. The mouth shows a thick, flabby tongue, coated with a white fur. The pharynx slightly injected and dry (pharyngitis sicca). The larynx negative. Nose: Septum deviated to the left. Hypertrophy of the turbinals of both sides. No pus or secretion could be noted on either side on repeated cocainization (four times) in the course of a week. Transillumination was negative. The puncture of the right antrum was negative, but from the left a quantity of very foul-smelling, thick pus was washed, which the patient insisted was identical in odor with her subjective sensations. This procedure was carried out twice; then a Luc-Caldwell operation was done. The discharge had not ceased when the patient left my care. After the first washing the subjective odor disappeared, and as long as she was under my observation it did not return.

Apropos the last case reported, Ziem⁴³ tells us of two cases of insanity as the result of parosmia. The first, a girl, just blossoming into womanhood, was taken to an asylum; and the second case, a youth, the nephew of a well-known historian, was also incarcerated for hallucinations of the sense of smell, and not until the autopsies, which showed a chronic empyema of the antrum of Highmore, were these cases cleared up.

CONCLUSIONS.

Parosmia is almost in all cases due to a definite pathological condition.

Parosmia is in a large proportion of the cases due to suppuration of the accessory sinuses of the nose, and then most generally the antrum of Highmore.

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STUDY OF DIAGNOSIS AND PATHOLOGY SHOULD NOT
LESSEN OUR CONFIDENCE IN THE INTELLIGENT
USE OF DRUGS.*

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My relation to this subject is considerably similar to that of an attorney who is assigned to defend a client whom public opinion has already tried and condemned. The attorney realizes that facts and arguments are largely on the other side. Yet nevertheless his duty towards his client compels him to prepare the best defence possible in the case. I believe that my comparison is quite true, if the profession were the judges. But the non-medical public, not versed in the science of medicine, would believe my client had a good chance of acquittal. So between the proofs advanced by science on the one hand, and the expectant methods of treatment usually followed on the other, lies the scope of this paper. It is evident my subject suggests its own limitations. It negatively infers that drugs are a doubtful equation in the treatment

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of disease. That such is true in the majority of pathologic conditions has been made painfully evident to every physician in all but too many instances.

That drugs are plentifully used in the treatment of disease, there can be no question. Antedating possibly primeval antiquity, the mound builder, the cliff dweller, and the cave man had recourse to drugs in medical practice. Whether primitive man by observation of the animals, who seemed to have some instincts for alleviating their own ills, copied after them, or whether by some instinct of his own which later developed into a more or less practical knowledge, we cannot tell. But true it is that there exists a positive belief in the human mind that there is something in Nature which, if found, will cure all ills. In considering the universality of this belief I am inclined to the opinion that it is born of that same optimistic desire for a compensatory condition of Nature, similar to that other well nigh universal belief of a religious nature which teaches of a perfect hereafter; a condition where there will be no pain, nor sorrow nor death, in other words perfect idealization. Some one has beautifully expressed this universal optimism when he said: "Hope springs eternal in the human breast."

The comparison, I believe, holds good, because disease of body and unsatisfied opportunity for perfection are the two most conscious facts that have ever been impressed upon the human mind. Whether or not the idealism of Heaven, or Nirvana, or Paradise, or the Happy Hunting Ground is logical is for the theologian, not the physician, to say. But the idealism of medicine, the finding of a compensatory or opsonic substance which will allay disease, has in a measure been realized and will, I believe, be fully eventuated in the days to come. The practice of medicine as intimated a moment ago is probably as old as man himself. But the science of medicine dates back but a few decades. In these latter days we have set up such distinctions as alone can be supported by scientific proof; and scientific proof of to-day is always the sort of proof which must see and know. So while we must admit that humanity has had its doctors and soothsayers and oracles and necromancers for hundreds of centuries, it never has had its scientific medical man until he was able to prove what was the real tangible cause of disease. This, as said before, was but a few decades ago. The scientific man has finally opened the portals which closed from him the mysteries of the lowly life of microbe and bacteria, and now he begins to learn the intimate relationship of these lowly protozoa as causative factors in the production of many diseases. No correct conception can be entertained of disease until he knows each step the microbe makes in its attack on the human body, the change of tissue that takes place, the marshalling of the powers of Nature by that unseen hand called Resistance, or that establishment of physical peace called Immunity. When everything concerning the consistency, habitat and mode of life of the pathogenic germ is known, then and only then can there be employed intelligently against this invader that destructive agency usually known as drugs.

I intimated at the outset that my subject had its limitations. The limitations referred to were the few diseases which we really can control by drugs. Among these may be mentioned malaria, syphilis, hydrophobia, tetanus and diphtheria. With these we have a fairly positive assurance that drugs or serum come quite up to the rôle of specifics. Among the more common diseases not as yet influenced by drug administration may be mentioned typhoid, pneumonia, tuberculosis, measles, mumps, scarlet fever and whooping-cough. Reticence forbids me from mentioning more. This brings me up against the kernel of my subject, viz., what shall we do in these diseases? If we say typhoid is not curable with any known means at hand, that usually it is a disease of three or four weeks, that if left alone the patient has the best chance for recovery, then when we are called in as physicians, what shall we say? Shall we do as the Mullah when called to the bedside of the sick musulman, write Kismet in the brazen bowl and depart? Shall we calmly inform the friends that no known therapy has yet been produced that will limit for a day the duration of the disease, and that the least medicine given the better the chance for recovery? Yet the abundance of medical proof bears me out in saying, we are up against a condition that so far has defied the cunning of man to cure. I imagine I hear some wag say, turn them over to the Christian Science, or to grandma. But this does not cure the patient, nor lessen our responsibility. The patient has called us in because as physicians he believes we can cure him. We come to the case, not in the belief that we can cure him, but as men whose judgment is matured by experience, and from this plenitude of experience we might be of some satisfying service to the patient. We have not acted dishonestly when we have carefully examined the patient and noted the changes each succeeding day. I am sure I have the concurrence of your opinions when I say that admitting we cannot cure the patient by our art, the patient is much safer in the hands of the physician who knows the inefficacy of the drug treatment than he would be if entrusted to those whose knowledge had never been born of experience.

As scientific men we have made great progress when we have weighed all the cures in the balance and found them wanting. It is a great thing to know your evidence, even if your evidence is negative. Then you are not apt to have mortifying failures resulting from the illusions of a hopeless drug therapy. In this case we are absolutely driven back to the recourse that Nature has resources of her own, and wiser than we, will effect a cure. This Nature does in a majority of cases, but fails in a distressing minority. It is to save this minority and to establish a certainty regarding all, that the man of research bends his energy. Prior to the serum treatment in diphtheria Nature cured about 60 per cent. of her cases. The loss of the 40 per cent. in which Nature failed pinned the crape on thousands of doors, and the voice of the wailing heard from within proclaimed that the children were not. This enormous loss to the family and state, in which we might compare it to the Children's

Crusade of medieval days, is now, thanks to the investigators of science, reduced to less than the fraction of 1 per cent.

As a layman, before the days of antitoxin, I well remember the horror that seized upon all households when the ominous word diphtheria was spoken. Vividly there arose before no inflamed imagination the picture of the hearth and grave, and that picture transformed itself into an unfeeling reality in thousands of homes. No human tongue can tell, no statistician can compute the great good already done the family and state by this one victory of science over that scourge of child life, diphtheria. But I must not wander from my subject to sing pæns on the work already done. But I come back to my typhoid patient again, I take his pulse and temperature, examine the sordid teeth and tongue, percuss the tympanitic belly, boil his urine, and examine his stools. I note that he is in the grip of a disease in which millions of a specific bacteria have colonized in his glandular and vascular systems, besides have invaded the recesses of the brain and cord. To see how his powers of resistance are I listen to his heart and inquire for any former disease. I auscultate and percuss the lungs for the same. The spleen is felt. The integrity of the liver is ascertained. I then ask myself, what can I do for the patient? If I cannot cure the disease, can I render him enough comfort to make my services of benefit to him? In this particular instance a physician is possibly a luxury. Yet an useful luxury withal, the same as music and art and all other embellishments which contribute their quota towards civilized society, and so again on the plea that the physician may see a time when possibly surgical intervention may be needed or some other untoward condition may arise demanding his judgment, I would say that the case demanded the services of a physician.

So then I would remove the sordes from teeth and tongue, use water internally and externally to quiet delirium and flush the secretions. I would administer a suitable liquid diet, give stimulants when needed, would use the ice pack and styptic drugs in hemorrhage, and in a word I would consider it my professional duty to ease up any depression and lend a helping hand whenever the powers of Nature signal distress.

If I should say anything concerning the routine drug treatment in those diseases not specifically influenced by drugs I would give it as my belief that many of our patients are over-drugged. This is not said in anywise to reflect upon the professional right of any practitioner to administer just such drugs as his judgment sees fit. But I believe that many patients are needlessly over-drugged by physicians who are somewhat too credulous in the claims of their materia medica and drug circulars. Until the riddle has been solved with reference to those diseases which are still treated expectantly, we as physicians will best serve our patients not by placebos or suggestion or Christian Science, but by a sensible view of the case in offering to Nature a helping hand when she desires our support.

SOME USES OF THE X-RAY IN THE HANDS OF THE
GENERAL PRACTITIONER.*

GEORGE S. EDMONDSON, M.D.

CLINTON, ILL.

The object of this paper shall be nothing more than to show the results of the *x*-ray treatment of many diseases and some uses to which it has been put by me in my practice. I make no effort to tell you how you shall use it nor dictate how to get the best results, but simply to state that for a little more than six years I have owned a static machine and have put it to as many uses as my practice would permit. I was surprised when I commenced its use, at the number of people who thought that the *x*-ray could be used to diagnose even so much as imaginary ills, and even yet some few think that anything should be seen with it.

One of the most common uses I have had for it has been to diagnose fractures and determine the extent of bone lesions, also to diagnose dislocations. I have in mind a case which came to me recently, in which the arm around the elbow was terribly swollen as the result of a traumatism and it was impossible to tell any more about it than that it was simply swollen, because the injury had been received 48 hours before. A skiagraph was taken and nothing else could have revealed at that time the fact that he had sustained a fracture of the olecranon process. Another in a boy of nine years old showed great swelling in the entire arm and severe pain a week from injury. Nothing could have been done without an anesthetic and even then it could not have been determined so well without a skiagraph that he had sustained a fracture of the external condyle with complete dislocation of both bones of the lower arm at the elbow joint. The results are so much better and so easily obtained that no man should neglect to see that one is used whenever it is possible, whether he has it in his possession or not. The location of foreign bodies can be made in no other way and it is one of the easiest things to do with the *x*-ray.

The diagnosis of pulmonary diseases is also said to be possible. I have made some attempts at this, but for some reason have not been successful enough to justify me in saying that it is a success. In the treatment of lupus I have been highly pleased with the success I have had. The results have been so nearly perfect that it seems almost proper to call it a specific for that disease. In the treatment of eczema I have not used it at all, and can not speak from experience of the results. In the treatment of sycosis, I can say that the results were eminently satisfactory, recovery being perfect in the few cases I have treated. Favus is also said to yield nicely to the *x*-ray, but I have had no experience with it. Several cases of epithelioma have come under my observation and all of them have responded to the treatment nicely.

In carcinoma I have not succeeded so well. One case of carcinoma of the breast progressed just as rapidly under the treatment as it did be-

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

fore, but I commenced the treatment late in the disease. One case of carcinoma of the cervix yielded nicely under the application of the *x*-ray by means of the Caldwell tube, but returned just as rapidly after the treatment had ceased. I have had one case of sarcoma, being that of the hand. Amputation at the upper third of the lower arm seemed to get entirely above it, and with daily exposure to the *x*-ray it healed perfectly within the proper time. No recurrence at the site of the amputation, but the patient died in four months from date of amputation from sarcoma of internal organs.

I have treated many cases of superfluous hair on the face, and in not one have I witnessed a failure to remove the hair. In the course of a few months they invariably return, but usually are not so hard to remove the second or third time. Most of my cases became discouraged and quit the treatment before perfectly satisfactory results were obtained, but in one case I removed them four times, another six times, and in neither has there been a return and three years have elapsed in each of the cases since the treatments were discontinued.

Another diseased condition which has resulted well from this treatment is acne. I have treated several such cases and in all have received highly satisfactory results. One case in particular of acne vulgaris, the skin is as fresh and clear as if nothing had ever been wrong with it. The result of twelve exposures. Radiographs for the diagnosis of gall stones I have not tried. For renal calculus I have tried to get good radiographs, but have not succeeded in any of my few attempts.

I have been successful, or you might say lucky, in securing the minimum of ill effects. In a little over six years I have had but one *x*-ray burn to my credit and it is pretty well healed at this time. I produced it by trying to do some good by giving long exposures to a tubercular knee joint. It did a very little good and resulted in a dermatitis, which lasted for three years. However, the many uses to which *x*-ray may be put and the good results therefrom makes it thoroughly applicable to the general practitioner and should be either in the possession or in reach of every one in the general practice of medicine.

DISCUSSION.

DR. EMIL G. BECK, of Chicago: Dr. Edmundson has outlined the general uses of the *x*-ray, but I wish to warn the members of the Society that there are various conditions in which the *x*-ray may do a great deal of harm. For instance, in using it for acne or epilation. The late results, say after three years, are dilatation of blood vessels, called telangiectases, which are practically incurable. In treating sarcoma or carcinoma of the breast, we have noticed that after the patients have been treated for a year, or have noted the result after that time, this dilatation of blood vessels was seen on the skin, and while it does not make much difference whether the telangiectasis appears on the abdomen, if it should appear on the face of a young lady after a few years it would be very distressing. Many such cases have been reported from Vienna in a paper recently published.

There is another contraindication, namely, the *x*-ray should not be applied in women of the child-bearing age, for the reason that its use may sterilize that patient. For the same reason in women eczema around the genitals should not be treated with the *x*-ray. Some of the uses of the *x*-ray have not been men-

tioned, in which conditions its use is very beneficial. I refer to the treatment of leukemia and sarcoma. Some cases of these two diseases are amenable to the *x*-ray treatment. There are cases on record of large tumors, particularly sarcoma, having disappeared under this treatment.

DR. S. E. MUNSON, of Springfield: I would like to ask Dr. Beck if these cases of leukemia treated with the *x*-ray do not have secondary anemia as a serious complication, and after a few months frequently causing death?

DR. BECK: That point is well taken. Blood examinations ought to be made and if the leucocyte count falls below 7,000, the treatment should be stopped at once. We have had one death of a patient whose spleen was reduced to one-quarter its size, and the leucocyte count from 130,000 came down to 1,000, but the patient died from intra-abdominal hemorrhage. We were quite surprised. I looked up the literature and found that it is a contraindication to keep on treating such patients two or three times a week when their leucocyte count falls below 1,000. The leucocyte count should be constantly watched during the treatment of leukemia.

DR. MUNSON: What was the red cell count?

DR. BECK: I do not remember it.

DR. EDMONDSON (closing the discussion): As to the effect on the blood vessels referred to by Dr. Beck, I have not observed this in the cases I have treated. In my paper I only gave the results of the use of the *x*-ray in my hands. I have not had an opportunity to observe the results of the *x*-ray in the treatment of leukemia.

NEW PUBLIC CHARITY EPOCH IN ILLINOIS.*

WILLIAM C. GRAVES.

Executive Officer State Board of Charities.

SPRINGFIELD, ILL.

Dr. Carriell, Miss Poston, Members of the Training School Graduating Class, and Ladies and Gentlemen:—So much has been written and said—good and bad—about the Illinois State Board of Public Charities during the last two years, that conflicting opinions exist regarding not merely the board, but the great state service over which it has moral supervision. Those people who know the truth, when sifted from the blinding chaff of politics, applaud the board for pioneer work in helping to bring about a new epoch of advancement in our public charity equipment and service. Those who are blinded by the flurries of political chaff wonder whether it is true, or even believe, that the Board of Charities is made up of negligent persons, who stand by and smile as horror upon horror is perpetrated by you—by you, who sit before me to-night—and by your brothers and sisters in the state service in other institutions. You know the truth about the Central Hospital for the Insane. You know that this institution, not by any means perfect, but not satisfied to stand still, is progressing, day by day, as its educational methods and its funds will permit, toward a better equipment and service. You know, also, to cite a specific case, that the published story that William Menezes was brutally treated, here in this hospital, is utterly, and to you and to me, ridiculously false. So I could go on and cite “horror” after “horror” here and in other state charitable institu-

* Read before the graduating class of the Central Hospital for the Insane Training School at Jacksonville, Ill., June 19, 1908.

tions that, when investigated, amount to nothing. I lack time, you lack patience to listen to such a recital. The truth is each institution is not perfect, realizes its shortcomings, and is forging ahead, during a grand epoch of advancement, just as this institution is; and with like handicaps.

NATURAL OPPOSITION TO PROGRESS.

But let us study this matter a little here together to-night. It is vital to us for we are stewards answerable to the people of Illinois. We know that all growth requires force. Force when used meets opposition. We know that. If the growth be of a plant force is required to crowd and shove it up through and down into and out into the opposing earth. If the growth is of some movement to improve the condition of human beings, opposition comes from those who are to lose, because of dishonesty or incapacity, as individuals, or who imagine they will lose, on account of the new order sought to be established. Sometimes these movements are accompanied by savage brute force. Witness the French revolution, with the chop, chop, chop of its guillotine. Witness our American revolution, which tore us from England and floated our ship of state, on a sea of patriots' blood, into the harbor of national independence. Witness, further, our American Civil War. It blew the shackles from the black man by grape and canister, which, in such service, soaked the land of the south with the life blood of thousands of brothers. Such revolutions are horrible necessities.

But there are peaceful revolutions. Evolutions, perhaps, is a better term. Force develops them too. That force is expressed in education and persuasion. Such epochs come in all commonwealths. I believe they are ordained by the Creator. The coming of such periods does not necessarily cast reflection upon those who maintained honestly to the best of their understanding and opportunities the old order of things. However, human nature is sensitive. When the force that shoves and jostles a new order of things into being begins to apply itself, it meets opposition, just as the tree does in its struggle to rise into the sunlight and grow, bloom and bear fruit for many to eat. This is equally true of the new order by education and persuasion and of the new order by bloodshed.

During the last few years one of these bloodless evolutions has been under way elevating our state charitable institutions to a modern level of efficient service and equipment. If the inevitable opposition to this movement, from persons who could not or would not understand, had not taken an attitude requiring sharp and decisive explosions of energy to overcome it, the entire trick would have been turned without so much as one harsh word. The Governor of Illinois and his State Board of Public Charities, in this service, had no enmity toward any individual. Their desire was to improve buildings and equipment and the system of caring for and curing and preventing the growth of the great, wretched defective and dependent classes of our population. But, as the result of what we consider unwarranted opposition, it became necessary to jostle and to shove. Many harsh, harmful, false words have been spoken dur-

ing this stiffening of muscles. There promises to be much more plain talk on both sides, especially in the drum beating and cymbal clashing of a political campaign. But, words or no words, the evolution in our public charity service is now near its completion so far as fundamentals go. Only one such step remains to be taken. Already there is well under way the physical rehabilitation of our institutions, some of which presented two years ago a condition of partial wreckage and inadequacy in various ways, due to a dozen years of politics of the bad sort practiced by both political parties. To-day the system of medical and nursing service for mental defectives is equal to any like system anywhere. The one big step which remains to be taken is the establishment of a new system of administration for the seventeen state charitable institutions, looking to co-ordination and greater economy. We have just come out of a giant's struggle over this question, which resulted in a victory for the State Board of Charities, whose abolition was sought. That was the grand mistake of the opponents of our progressive board—to try to eliminate supervision by disinterested persons. Next winter, having in the meantime received additional counsel from the best informed men, we shall submit recommendations for a modern, well balanced system of administration embracing the efficient points of diverse systems in use in various parts of the world.

The result of all this work, already in evidence, is assured, even to the final step yet to be taken, because the men and women supplying the force for the upward movement are earnest in their purpose, honest in their motive, and intelligent in their method, and because they are applying the force for better things at the moment when the great majority of the people of Illinois, ready these many years gone, stand like a solid wall of support for improved equipment and service. Look out for men and women who are in earnest! They achieve! Sooner or later the few who asperse the motives of the Board of Charities will praise them; those who belittle their intelligence will commend it. The whole movement is the old, old story of "history repeating itself"—of force applied in a just cause, opposition, success!

ACORN AND THE OAK.

The public charity service of our state can be likened to a giant oak. Oak trees grow slowly from acorns. Let me discuss only that gnarled branch of our service which deals with the insane. Before the early Greeks and Egyptians began giving water treatment to the insane and before Jesus began casting out devils, insane persons, generally speaking, were driven out of their homes, driven out by their kin, into the streets. There they were pelted with stones and sticks hurled by the mob. They fled from the home village into the country. Here they dwelt in caves and hollow trees, living like wild animals, "possessed of devils" the people believed. During the middle ages, when the scientific methods of the Egyptians and Greeks were forgotten, horrible brutalities, even death itself, were visited upon the insane. Gradually these unfortunate creatures were gathered in prisons. Convict guards beat them with whips

and clubs when they became noisy and violent. Then the insane were collected in abandoned monasteries. Priests by exorcism tried to expel the evil spirits that were supposed to cause violent and destructive insanity. Gradually the insane were given the rudiments of hospital treatment, but chains and horrible beatings still were employed, sometimes for the amusement of spectators. Finally Pinel in France, Tuke in England, Jacobi in Germany, and Rush in America began the pioneer work that has resulted in hospital care for the insane as against the custodial plan. At last the acorn had sprouted again, as it did centuries before, and began to crowd and jostle its way through the earth of ignorance and brutality toward the sunlight of skilled, humane, curative care. In this service were two famous women—Elizabeth Frye abroad and Dorothy Dix in America and abroad. They not merely worked for a satisfactory medical administration, but for nursing service on the ground that insane persons are not mad animals, to be chained and beaten, but are physically sick of a disease which in the early stages of many of its forms is curable.

DOROTHY DIX IN MORGAN COUNTY.

When Dorothy Dix, in the course of her inspections of almshouses and family care of the insane, reached Illinois, she found conditions that were horrible indeed. In her memorial to the Illinois General Assembly in 1847 she cited instances. Speaking of one she said:

There is at this time in Morgan County, a man who has been furiously mad, most of the time, for many years. Since he became insane, he has been supported at large expense by the county. His sister and brother-in-law have charge of him. A county officer writes to me concerning this poor creature, as follows: "Fanning is in a most wretched condition, being kept more like a wild beast than a human being." I have, together with several citizens of Jacksonville, visited this maniac. Those who are paid by the county for taking charge of him seemed to me to err through incapacity and entire ignorance of how to control him, rather than through willful neglect and inhumanity. His sister said to me: "He is a sight of trouble, and cost a dreadful deal—but we had rather take care of him than leave him to strangers, because we are kinder, and treat him better than they would." Now for the comfort, the situation, the treatment of this unoffending man, who, before the accident which induced insanity, was characterized, as is testified by those who knew him, for intelligence, industry, and correct habits.

It was an intensely hot day last summer when I visited Fanning. He was confined in a roof pen, which enclosed an area of about eight feet by eight—probably a few inches over. The interstices between the unhewn logs freely admitted the scorching rays of the sun then; as they now afford admission to the frequent rains, the driving snow, and the pinching frost. He was without bed and without clothing; his food, of the coarsest kind, was passed through a space between the logs; "no better," said a neighbor, "than the hogs are fed."

Some sort of coarse bed-clothing and garments at times were supplied, but usually not. His feet had been frozen, and had perished; upon the shapeless stumps, he could, aided by some motion of his shoulders, raise his body partially against the side of the pen. This wretched place was cleaned "once in a week or fortnight" in mild weather; not so in the wet, cold, wintry season. I was told that when the pen was opened for this purpose, the help of neighbors was requisite. "We have men called, and they go in and tie him strongly with ropes, and get him out on the ground, and then they clean the place, and him, by

throwing over pails of water." Of course no fire is here introduced in cold winter weather; but a singular expedient has been adopted, as horrible as it is singular; beneath the pen is excavated a pit, about six feet deep and six on either side. This dreary, ghastly place is entered through a trap door, neither light, heat, nor ventilation there; but there is to be found a pining, desolate, suffering maniac, whose piteous groans, and frantic cries, would move to pity the hardest heart.

Gentlemen, as you read this terrible narrative, and if you choose may visit the miserable subject of it, place yourselves for a few dreadful moments in his situation; realize, if you can, some portion, it needs will be a small part, of his sufferings; consider that these are spread over years gone by, and may drag through years to come, if no hospital unfolds its portals to receive and give relief for such deep distress. The Saviour, whose disciples we profess to be, left one simple, infallible rule, as a direction of the acts of man to his fellow man, viz.: "As ye would that men should do to you, do ye even so to them." I have laid before you one case, yet not revealing half its horrors; it varies but very little from many I could adduce; the list of which other persons can extend both here and abroad. But one effective remedy for these woes is presented; it can only be found in a well established, skillfully conducted hospital.

As the result of Dorothy Dix's appeal, bristling with real horrors, this noble institution in Jacksonville, the Central Hospital for the Insane, was established. You see the public charity oak was taking firm root in Illinois.

BIRTH OF THE STATE BOARD OF CHARITIES.

From 1840 to 1870 the Central Hospital for the Insane was the only state institution devoted to the care of that unfortunate class. In 1869 the second step in working out the problem of state care was taken. This was the creation of the Board of State Commissioners of Public Charities. Prior to the creation of this board state charitable institutions, for there were institutions for the care of others than the insane, worked separately. There was no endeavor to co-ordinate their energies or supervise their service by a central body. The first Board of Charities in its first report to the Governor in December, 1870, stated its objects briefly as follows: "In a word, they (the board members) have two objects to accomplish by their action, namely: to insure to the dependent and suffering a just measure of relief, and to guard the public at large from extravagant demands in the name of charity. Their function is to give simplicity, unity and increased efficiency to the system of state aid; to secure the largest results at the least relative cost; to diminish, as far as it is in the power of the government to diminish, the sum of suffering and of crime within the limits of the state."

Experience in business had shown the necessity of supervision over department work, as for instance periodical audits and personal surveillance. The same necessity existed regarding institutions broadly classed as charitable. The Board of Charities is designed to perform such service. The board is the accredited continuous representative of the Governor and of the General Assembly, which meets once in two years. This board is designed to be the connecting link between the public and its state representatives, the friend and candid advisor of both. It serves to protect a state administration or an institution against unjust assaults.

Yet it must make sure that administrations and institutions are faithfully, honestly and intelligently performing the duties entrusted to them by the people. The board has unlimited power of inspection and investigation and recommendation, but practically no administrative power. Its strength is moral strength.

THE PRESENT STATE BOARD OF CHARITIES.

Successive Boards of Charities had served the state, meeting the various epochs of advancement, when Charles S. Deneen was elected Governor. He recognized popular unrest regarding the state charitable institutions. Progressive men and women felt that there was need of a careful study of the existing conditions and system with a view to such changes as might be found necessary. To advise him in carrying out this vast undertaking Governor Deneen appointed a Board of Charities composed Dr. Frank Billings and Dr. Emil G. Hirsch of Chicago, Miss Julia C. Lathrop of Rockford, Dr. John T. McAnally of Carbondale, and Mrs. Clara P. Bourland of Peoria. Each was qualified with expert knowledge for some part of the work at hand. All appointments were made without regard to political considerations. The board decided:

1. Not to turn ghouls and dig into the graves of the past, with the hope of airing "scandals" and turning up "horrors," but to build on the basis as found to exist. Its policy was and is constructive, not destructive.
2. To make a study of medical and nursing administration, especially in the insane group of institutions, and devise an efficient system, if one were needed.
3. To make or cause to be made an expert survey of buildings and mechanical equipment and, if conditions demanded, to devise plans looking to the safety and well being of patients and the economical operation of institutions.
4. To take up business administration after matters of more immediate concern to patients had been given attention.

Institution people are familiar with what the Board of Charities found, what it tried to persuade the Legislature to do, and how the republican majority in the General Assembly split into factions, and conducted a most vigorous fight among themselves over the unsatisfactory conditions frankly stated by the Board of Charities. This was the active beginning of the epoch of advancement. The inevitable opposition to progress, of which I spoke a moment ago, developed. The Board of Charities became the center of the storm. It was ignored first. Then it was deprived of money required to do the work assigned to it in the emergency of the new epoch. It was the old story of being ordered to make bricks without straw. While the friends of the board forced the appropriation of \$1,500,000 extra money for the institutions, the amount allowed fell \$1,000,000 short of what experts declared was necessary to make our institutions safe and start them satisfactorily on the road to complete physical rehabilitation and complete state care of the insane, for which the Legislature gave legal authority. Then came the legislative investigation, which found many wonderful false things, which found what the Board of Charities had told the Legislature about the institutions was true, which found the money appropriated insufficient but being expended wisely, under the existing system, to improve conditions, and

which made wholesale condemnation and gave no credit for the great work already accomplished, in spite of legislative handicaps. But let all that pass! The work of the Board of Charities gives it answer. In my opinion, the real value of the house committee's inquiry is that it has awakened public interest to the studious, inquiring point, where our campaign of education and persuasion will reap its final reward.

NURSING AND ATTENDANCE OF THE INSANE.

Now I come to that part of my address which is of most personal interest to you as nurses and attendants. I shall pass over what has been done in medical administration and physical rehabilitation, new buildings, and the like. Scientific nursing naturally followed scientific medicine and surgery. But the insane, until twenty-five years ago, were sadly, awfully neglected by science, save for a few exceptions. The failure to realize generally that insanity is an illness due to physical causes, has left countless thousands of hopeful cases tugging at chains and other restraints till death relieved their suffering. Can you realize that Utica cribs were in use in Illinois two short years ago? Can you realize that human beings, wretched beyond description, tried to gnaw out of these reclining cages and left the marks of their teeth?

Elizabeth Frye protested successfully to the courts of Europe against the brutal treatment of the insane, but many years elapsed before scientific, curative treatment was employed. Dorothy Dix, in America, realized and declared, more than sixty years ago, that insanity not only is a disease, but is not a "hopeless and incurable disease;" and is "subject to successful physical treatment, as surely as a fever, or other common bodily disease." She helped establish the hospital system of care of the insane, but her pioneer work had to be done again years later. That you may realize the tremendous importance of properly nursing mental and nervous cases I desire to cite, on the authority of Dr. Carlos F. McDonald, former president of the New York State Commission in Lunacy, "that insanity is a disease which invades all classes of society;" is "one from which no one can claim exemption," and "that it involves to its victim, to his immediate friends, and to the community, a wider range of interests than any other disease."

The mental and nervous cases are sick cases while in the acute stage, from a few hours to several years. Such patients are sick because their nervous systems are temporarily, or permanently, diseased. The other organs in the bodies of such patients are disordered, in some cases prior to and leading to insanity and in other cases as a result of the mental or nervous disease. The danger of intercurrent infections and diseases and injuries is greater among mental and nervous cases than among normal people. Because of the mental impairment of the patient, recognition of the existence of such intercurrent disease or injury is more difficult and requires more than ordinary knowledge and training. Therefore, even the chronic class of patients requires scientific supervision. Well, as insanity is a disease, arising from physical causes and requiring physical remedies in modern hospitals, it follows that this monster also requires

modern, scientific nursing. As women are natural nurses, trained women should supervise the nursing of mental and nervous cases, including the excitable, violent types. Insofar as their physical strength goes, they should perform the actual service.

BOARD OF CHARITIES MODERNIZES NURSING.

The Illinois State Board of Charities, realizing that nurses must understand that the excitement, violence, suicidal and homicidal tendencies, and filthy habits of various classes of insanity are merely the symptoms of a disease, requiring gentle treatment, provided in that branch of its program for modernizing the entire public charity service of the state, for the education of nurses as part of the efficient medical administration in hospitals for the insane, just as it provided for the modern education of physicians in the Psychopathic Institute. It also favored the woman as against the man, especially in nursing the acute insane and the physically sick insane.

Two years ago there were training schools for nurses in three of the eight institutions in the insane group, including the Asylum for Feeble-Minded Children. These schools were located at Jacksonville, Kankakee and Anna. The first step, therefore, toward modern nursing and attendance was the establishment of efficient training schools in hospitals not having them and in extending the service of existing training schools where needed. This was agreed to on the specific basis known to you. It was also determined that a uniform plan of organization was essential to the uniform curriculum, and the following points of such uniform organization were approved; not merely by the Governor and the Board of Charities, but by the institution superintendents, without whose cooperation we were powerless:

1. A woman superintendent of nurses in charge of all the nursing and attendance service, who shall herself be a graduate nurse; with preliminary experience in nursing mental cases, if practicable.
2. The employment of a group of graduate nurses from general hospitals in charge of the attendants and nurses-in-training.
3. Nurses-in-training and attendants to be under direct charge of the graduate nurses.
4. Cooperation with general hospitals whereby nurses in-training, obtained at no greater cost than attendants, shall be given courses in nursing mental diseases.
5. Organization, as rapidly as possible, of general hospitals inside hospitals for the insane.
6. Clear differentiation between the nurses and the attendants.

WILL PROVIDE SYMMETRICAL NURSES.

This scheme has been carried out so far as practicable and we hope and expect to adjust points of imperfection so as to establish a smoothly working mechanism and to afford nurses a symmetrical, well-balanced training, so that they will understand surgical nursing, the nursing of obstetrical cases, the nursing of sick children, the nursing of contagious cases, general hospital medical nursing, and the nursing of mental and nervous cases in public hospitals, in private institutions, and in homes.

I think I am safe in assuring you that the training offered not merely will make symmetrical nurses, but will give satisfactory ultimate reward in money; and that is something which the necessity of bread and butter and other creature comforts makes us all consider in our life career, whatever it chances to be.

RECIPROCITY WITH GENERAL HOSPITALS.

Interchangeable training between hospitals for the insane and general hospitals will prove of greatest benefit to those of you who will make nursing your life work. The idea of this reciprocity, as already stated, is to train nurses who have been educated in insanity in general nursing, and those who understand general nursing, in the nursing of mental cases. In an endeavor to start reciprocity the Central Hospital for the Insane made an arrangement with the Passavant Hospital here in Jacksonville, for reciprocity, but the nurses did not take the insane training. No doubt this plan will be successful next season.

The Northern Hospital for the Insane, at Elgin, has a one-sided reciprocity established only with the Presbyterian Hospital Training School of Chicago, from which Elgin has had seven nurses and an equivalent number is on the list waiting to complete a certain amount of training at that hospital. An agreement has been made to receive one nurse from the Marion Sims Hospital of Chicago, one nurse from the Blessing Hospital of Quincy, and a list of nurses from the Hahnemann Hospital of Chicago is being prepared. No one as yet has been sent from Elgin to any of the general hospitals, although several have left of their own accord to take training in a general hospital.

The Southern Hospital for the Insane at Anna has two reciprocity nurses from St. Louis. The General Hospital for the Insane at Peoria has not been successful with Proctor Hospital at Peoria. Kankakee has not yet attempted reciprocity. Watertown expects to establish reciprocity next year. Dunning finds a civil service impediment to reciprocity.

Superintendents of training schools in general hospitals, almost without exception, have expressed a desire to place mental nursing on their lists of studies as soon as practicable and to fully co-operate with state hospitals for the insane. As stated in the foregoing, we expect in due course to have the reciprocity system working thoroughly and satisfactorily to the great benefit, we believe, of nurses and to the incalculable benefit of incipient and acute cases of insanity, and, therefore, to the public at large.

SUMMER SCHOOL IN SOCIAL SCIENCE.*

A summer school in social science is being arranged on the initiative of Miss Julia C. Lathrop, with the cordial support of Governor Deneen and the Board of Charities, to give attendants from our hospitals for

*Since this paper was read the summer school completed a successful season. Twenty-four pupils, representing institutions in Illinois, New York, Indiana, Nebraska and New Jersey attended.—EDITOR ILLINOIS MEDICAL JOURNAL.

the insane and feeble-minded the benefit of a summer course, this summer in Chicago, at the Chicago Institute of Social Science. The Institute, desiring to assist in the improvement of the state institutions now going on, offers to remit fees to a selected number of attendants from each institution. The Institute expects this summer to be able to receive three from each institution, preferably those who have had attendants' training for the present year under the new system and who shall be selected by the superintendent as persons of special promise. The course will consist of lectures by physicians and educators, of practice work in various forms of handicraft, occupation and amusement and of excursions and visits to places of interest in Chicago and its environments. The work will be in charge of the best people who can be obtained and the course will be directed first toward making the students feel that their work in an institution for the insane is essentially educational and dignified, and second towards giving them new methods of employment, entertainment and instruction for patients.

The occupations will be in charge of Mr. Edward F. Worst, head of the department of industrial arts in the Chicago Normal College. No one in the United States is better equipped for such work than Mr. Worst. In addition to thorough training and wide experience in this country, he has made repeated journeys abroad in order to take courses in Sweden and Germany and to observe the best foreign methods of teaching by handicraft.

The plays and games will be in charge of Miss Mary Laura Sheldon, associate principal of the Chicago Froebel Association. Miss Sheldon was a graduate student at Naas, Sweden, and has had a long and most successful experience in teaching students and teachers. Mr. Worst and Miss Sheldon have given careful attention to the selection of such occupations and games as shall be practicable under the conditions of life in the average institution.

The general supervision of the class will be in direct charge of Miss Helen Burling of Hull House, Chicago. Students will be expected to attend all of the sessions and exercises and to take whatever part may be assigned in the work of the class room. Students will be given credit as their work justifies and reports of the work done by the attendants sent from the various institutions will be made to their respective superintendents. The classes will be held daily, except Saturday and Sunday, in the lecture rooms of the School of Civics and Philanthropy at 174 East Adams Street. The classes in occupation will be from 10 to 12 daily. Three mornings a week there will be lectures at 9 a. m. Two afternoons a week, alternating with the lecture days, there will be classes in games and amusements. There will be at least one excursion or visit weekly. Saturdays and Sundays will be entirely free. Boarding places for attendants from the Illinois institutions have been secured at a special rate of \$3.25 weekly. It is understood that attendants will be detailed to this institution just as physicians are to the State Psychopathic Institute, and that they can be allowed their salary and the usual \$15 a month maintenance.

Dr. A. W. Ferris, president of the New York State Commission in Lunacy; Dr. Owen Copp, executive officer of the Massachusetts Board of Insanity, and Dr. Adolf Meyer, director of the New York State Pathological Institute, commend this Illinois plan. In addition to Mr. Worst and Miss Sheldon, others engaged for lectures this summer are: W. B. Moulton, Dr. Eugen Cohn, E. P. Bicknell, Mrs. Ella F. Young, Mrs. Charles Henrotin, Professor James B. Angell, Dr. Alice Hamilton, Miss Jane Addams, Dr. V. H. Podstata, William C. Graves, Professor Graham Taylor and Dr. Frank Billings.

WOMEN SUPERIOR TO MEN IN MENTAL CASES.

Now a word about women nurses in our hospitals for the insane. Already we have women who are superintendents of nurses and attendants. We are trying what some consider the experiment of female nurses in charge of disturbed male wards on the theory—on the belief—that women are better nurses than men. We have to-day 68 women in charge of male insane patients. Eight of these women are in charge of acute, disturbed and physically sick insane men. Some of our superintendents assert women have failed in this difficult and tactful service. Others praise them. I believe, however, that women are superior to men, on male wards, because they are better housekeepers, because they go more thoroughly into the little items of service, because they are not as rough as men, because they are patient, because they are more attentive to the patients, because some excitable male insane patients will receive food and medicine from women nurses when they would fly into a passion and resent the approach of a male nurse, resent it with a ferocious attack; and because many insane men retain their respect for women and behave themselves in their presence, use better language and are more obedient.

WOMAN THE NATURAL NURSE.

One needs only to recall the memories of his childhood aches and pains and of his mother's gentle ministrations to realize women are natural nurses. History abounds in praises of women in this gentle service. There was Deborah, the nurse of Rebecca, who mingled her professional duties with song and prophesy. Both medicine and surgery were among the recognized duties of women among the early Scandinavian and Germanic races. During the crusades the women nursed sick and wounded knights. In the twelfth century Hildegard established a training school for women nurses. Henry VIII. of England established a staff of women nurses to visit the indigent sick of London. The church had its noble women nurses. "The little German Frau of the Rhine" gave Florence Nightingale the training as a nurse that perfected her for glorious service in the Crimean War. Elizabeth Frye, the Quakeress; then our own noble Dorothy Dix performed grand service, getting into the neglected field of medical and nursing service for the insane. After them have come a countless throng of splendid women, and the Red

Cross Society, whose service to humanity is too great for any pen and inkhorn and paper to express, no matter what inspired man or woman uses them.

BOARD OF CHARITIES RECOGNIZES WOMEN.

The Illinois Board of Charities has recognized the superior fitness of women in insane cases. The number of women nurses and attendants in the Illinois State public insane service in 1905 was 358, in 1907, 439, or an increase of 81, or 22 per cent. increase; in 1908, 524, an increase of 166, or 46 per cent. increase over 1905. All chief nurses, or superintendents of nurses, now are women. In 1905 there was only one woman a chief nurse, an increase of 500 per cent. for 1908. In 1905 there were four women graduate nurses; now, in 1908, there are ten, an increase of 150 per cent. The total nursing and attendance service in 1905 consisted of 358 women and 338 men, a total of 796. In 1908 there are in the same service 524 women and 377 men, a total of 901. The men have increased 11 per cent. and the women 46 per cent. These figures in so far as they concern men, include the Asylum for Insane Criminals, where as yet there are no women nurses.

THE VALUE OF KINDNESS.

No doubt your instructors have gone into the psychological phase of the care of the insane, not in blocks and masses, but as individuals. But I want, in closing, to emphasize this efficient method. I know full well the severe trials your patience has with violent, excitable, destructive and filthy insane persons, but, always remembering that discipline is necessary, kindness is the best way. I could cite many instances to prove this. A celebrated superintendent, Dr. Richard Dewey, who was forced out of the Illinois service some years back by politics of the bad sort, wrote a book of rules for employes of his hospital for the insane that form a classic in such literature. I wish I had time to read his introduction. But I shall read only one paragraph. After quoting from St. Matthew, chapter 25, verses 32 to 40, inclusive, the author writes: "The above words, taken from the account of the 'Last Judgment,' well express the work which falls to the lot of those employed in a Hospital for the Insane, for within its walls the hungry are to be fed, the naked to be clothed, strangers are to be received and welcomed, and those who are sick and in prison are to be visited. And this work has need of all the kindness and gentleness and unselfishness of which we are capable."

Every nurse, every attendant, every keeper in every hospital for the insane should have an illuminated copy of that quotation framed and hung upon his wall. He should read it every day. He should remember it all through every day. He should follow its teachings every day.

CONCLUSION.

I have tried to tell you some of the stages in the growth of public charity from an acorn into an oak. In so far as I am able to describe this growth, you have the truth, winnowed from the blinding chaff of

politics. Oak trees do not grow quickly by the waving of a magician's wand. Those who are heart and soul in the work of public charity administration would sink into profound discouragement, because of this slow growth, if they could not look back through a perspective of centuries from the oak of to-day to the acorn from which it sprung. I wonder if the critics who have caused storm winds to rage through the branches of our Illinois Public Charity Oak of late realize, I wonder if they even know, that practically all the progress in America in the field now called charities has been made during the last 100 years, most of it during the last 50 years, a mere atom of time as time goes. In America at the opening of the nineteenth century, to take your branch of the service, there were only four "insane asylums." There were, in 1903, 226 public institutions, a considerable number of them curative hospitals; and 102 private hospitals for the insane. Three hundred and twenty-eight institutions as against four 100 years ago! Viewed in such perspective, public charity devotees have every reason to be proud of what has been accomplished, to cry out in a louder and louder voice for the united support of all good people and to press on to the goal of a modern service and equipment which is almost within our reach to-day.

I wish you, the members of the graduating class of 1908 of the Training School of the Illinois Central Hospital for the insane, God-speed in your service of mercy and hope!

Dr. Carriel, I thank you for the honor of asking me to address your nurses and attendants on this hopeful and inspiring occasion.

FOUR HUNDRED AND SIX CASES OF ALCOHOLISM, CONSECUTIVE INDIVIDUAL OBSERVATIONS.

A CLINICAL STUDY ACCOMPANIED BY COMPARATIVE STATISTICS.*

(*Preliminary Report.*)

J. F. HULTGEN, M.D.

CHICAGO.

A.—The material for this report is derived as follows: 1. One hundred and fifty cases of alcoholism, observed in 1902, when I was physician in charge of the Iowa State Hospital for Inebriates at Mt. Pleasant. 2. Two hundred and fifty-six cases of alcoholism in my private practice, observed and followed up from October, 1904, to May, 1908. These cases form the nucleus of the present article. 3. Fifty-two cases from the Cook County Hospital assigned to me as interne in 1900-1902. 4. Five hundred and sixty cases of delirium tremens collected at the Cook County Hospital registrar's office from March, 1897, to June, 1900. Some valuable data has been obtained from this material. 5. Two hundred and ten cases of alcoholic cirrhosis, also collected at the same hospital. 6. Three hundred and twelve cases from the first report of the Iowa State Hospital for Inebriates, now at Knoxville, Iowa. 7. From various

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

sources, in the literature, text-books, etc., as indicated in the bibliographic appendix, and less fully on the charts which I am exhibiting here: You see that I began to study and collect these cases since the spring of 1902, and continued this line of investigation up to the present date.

B. *Classification of Drinkers.*—You notice that I am not trying to classify the various forms of alcoholism. It would only obscure our perspective. In fact the cumbersome terminology of alcoholic psychoses has retarded nationally the study of alcoholism all these years. Let us remember that although alcohol is a food when taken in certain quantities, and can be substituted isodynamically for other food elements, it is nevertheless a narcotic poison when taken in such amounts and as frequently as we are accustomed to see amongst ourselves and amongst the laity. Let the physiologists disagree for awhile. In the meantime we as clinicians watch the somatic and psychic effects of alcohol and mark down our data. We are assisting at a human experiment, an auto-experiment by the patient himself, which with remarkable scientific precision designates in due time, to a certain degree, and in certain tissues such changes as enable us to make a diagnosis of alcoholism. I have become convinced in the course of my investigations that excessive drinking produces no one pathologic change at random, but always in conformity to certain rules, a few of which are known, others can be projected, and again others that will be clear in the future with our better understanding of psychiatry. I am not concerned with drinking as with the drinkers, and I therefore classify them as follows:

1. Insane patients, who drink; confirmed epileptics, with senile dementia, with hereditary psychopathy, general paretics, in certain stages of dementia præcox, or during psychosis arising from intoxication other than alcoholism.
2. Dipsomaniacs, impulsive, distinctly periodic, with intervals of complete sobriety, full consciousness, and but few somatic symptoms. They are easily differentiated from the rest; they drink for intoxication, not for the intoxicant. Periodic annihilation of will power, not of intellect upon an hereditary taint is the basis here. Dipsomaniac is perfectly compatible with genius and effectiveness in public life.
3. Proto-dipsomaniacs: Such patients as possess already the soil of impulsiveness, and who, upon sufficient mental or somatic traumatism, may become full-fledged dipsomaniacs. The segregation of this class of patients is not difficult; various forms of melancholia, of mania, confusion, peculiar forms of delirium, of amnesia especially, and delusions of a special color, perversions, etc., are observed here. They form a fair percentage of all drinkers.
4. The so-called normal drinker, who indulges from force of habit, of sociability, or custom. Very often he expects reasonably or unreasonably certain advantages such as gain in strength, or recuperation, or financial profits. The somatic symptoms overshadow here all others. He is the reformable plastic drinker who can become temperate if he wants to, although he does not do so as a rule. Death in such cases is often due to drinking only or mostly. The so-called normal drinker forms about 40 per cent. of all alcoholics, but this

varies greatly with the nationality and race. 6. Beginning of the morbidity due to alcoholism: (a) Psychic morbidity may, of course, begin with a single excessive dose of alcohol. Amnesias, hallucinations, delusions, and obsessions may burst forth after a few excessive doses. The onset, intensity, and form of this morbidity varies with the heredity, kind of intoxicant, and quantity taken. As a rule it takes a number of years to produce certain psychopathic changes. (b) The somatic changes of alcoholism begin after an average time of eight to ten years. A short study of this age chart will show it plainly.

Etiology of Alcoholism.—This is of course a presumptive title, but we will use it here for the purpose of study. The real cause for drinking lies deeply imbedded in human nature. It is expressed by an indefinable desire for euphoria, a dread of sinister events, doubt and hesitancy before a serious task of life. It is so easy to condemn drinking, and especially the drinker. Some of us would crucify the liquor traffickers. And yet we all are looking for oblivion, for poppy, for a physical or a psychic narcotic; yes, we all would throw a veil over the past, would gild our present, and propitiate the future. The real causes, then, of excessive drinking are beyond our grasp, and it behooves us to consider only the indirect causes, such as age, nationality, occupation, sex, religion, etc.

1. From the age at entrance upon treatment we see that the heaviest decades are the fourth and the fifth, with 62.54 per cent. of all cases. It is evident from the tables that the patients in general present a greater morbidity than any other two diseases together. Re-admissions are not counted. Previous illness attributable to alcoholism was present in only a fair sized minority. 2. A study of 521 cases in regard to the time of life when their excesses began is very interesting indeed. The two heaviest combined decades here are the third and fourth, with 75.6 per cent. of all cases. The danger decade for drinking is the third, that is, the first half of it, with 55.3 per cent. of all cases starting their drinking at that phase of life. The above two curves illustrate the mortality of the rise and decline of both. The curve of the first curve is in the fourth decade, and that of the second in the third decade. This means to me that the morbidity from alcoholic intoxication begins to manifest itself within eight to ten years after the beginning of excesses, that is, it takes about eight to ten years of continual drinking of alcoholic liquors to poison the average person of average strength, of average heredity, and of average morality of drinking. 3. Only 44.5 per cent. of 2,023 cases are married; 55.5 per cent. of them being single or widowers, or separated. The bachelor is too well represented by 40 per cent., and he illustrates the value of home life in the restraint it imposes upon a willing man. Yet no far-reaching conclusion can be based upon these civil state statistics, for they vary a great deal with the source that they are taken from. 4. The nationality alcoholics present a striking lesson for everybody, and particularly for the native white. The Yankee leads in all manners of drinking, even in the impulsive variety of delirium tremens, and who would say so? Also in the production of hepatic cirrhosis. The fact

that in my practice 185 of 256 drinkers are Germans is due to the simple fact that I am working in a German section of Chicago. It is in keeping with Irish nationality that they make a large contingent among 560 delirium tremens cases. I believe, moreover, that Americans, born of American parents, constitute about 40 to 45 per cent. of all drinkers. Thus, in 137 U. S. drinkers which I studied in Mt. Pleasant, Iowa, 104, or 76 per cent., have American born parents. Further comments are idle, for the facts can take care of themselves. 5. Female drinkers shed little glory upon their sex, but we are concerned more with the truth than with sentiment. A comparison of my own tables with those of German, French and Italian authors shows striking similarity. The fact is that about 10 per cent. of 32,944 drinkers are women, and my opinion is that this percentage is rising already at the present time. 6. The various occupations of drinkers, in my own statistics, throw little light upon the relation between work and the genesis of drinking. Unskilled laborers are 33.7 per cent., as compared with skilled laborers, who show in the table with 31.27 per cent. The only safe statement to be made here is that as a rule the ignorance of the man decides more often than the kind of occupation.

TABLE 1.—AGE OF ALCOHOLICS AT FIRST CONSULTATION OR UPON ADMISSION.

	Decade.							
	2d.	3d.	4th.	5th.	6th.	7th.	8th.	9th.
Private practice, 256 cases.....	1	44	80	70	45	13	4	..
Percentage	0.3	17.0	30.9	27.4	17.5	5.3	1.5	
Mt. Pleasant, 150 cases.....	2	32	43	35	29	6	2	1
Percentage	1.3	21.3	28.7	23.3	19.4	4.0	1.3	0.7
Delirium tremens, 560 cases....	3	81	231	167	56	14	5	1
Percentage	0.3	14.5	41.5	30.0	10.0	2.65	0.9	0.2
Alcoholic cirrhosis	0	23	69	65	42	10	1	..
Percentage		11.0	32.86	31.2	20.0	4.71	0.3	
Knoxville, 310 cases.....	3	44	87	85	57	15	17	2
Percentage	0.96	14.17	28.1	27.47	18.36	4.8	5.5	0.64
Average by decade.....	0.5	15.0	34.0	28.5	15.4	4.6	1.8	0.2

TABLE 2.—AGE AT WHICH ALCOHOLICS BEGAN THEIR EXCESSES, 521 CASES.

	Second decade.	Third decade.	Fourth decade.	Fifth decade.	Sixth decade.	Seventh decade.
Private Practice, 256 cases.....	45	190	21	0	0	0
Percentage	17.3	74.2	8.5			
Mt. Pleasant, 150 cases.....	32	58	41	12	6	1
Percentage	21.5	36.8	27.5	8.0	4.0	0.3
T. D. Crothers, 115 cases.....	3	39	43	21	9	..
Percentage	2.6	33.9	37.4	19.3	6.9	
Percentage per decade.....	15.3	55.3	20.3	6.3	2.9	0.2

TABLE 3.—CIVIL STATE OF DRINKERS (INCLUDING 2,023 CASES).

	Private Practice, 242 cases.	Mt. Pleasant, 150 cases.	Knoxville, 310 cases.	Delir. Tremens, 560 cases.	Alcoh. Cirrhosis, 210 cases.	Med. Ward, Cook County Hosp., 53 cases.	T. D. Crothers, 115 cases.	J. E. Escher, 383 cases.	Total, 2,023 cases
Married	179	72	134	187	97	18	41	190	918
Percentage....	73.9	45.8	43.2	33.3	46.1	33.3	35.6	49.0	44.5
Single	45	45	124	320	78	27	51	120	810
Percentage....	18.6	39.7	40.0	57.1	37.2	51.2	44.34	33.0	40.0
Widow or widower..	13	18	17	35	26	8	8	28	153
Percentage....	5.35	7.5	5.5	6.2	12.4	14.54	6.9	7.0	8.0
Divorced or separated	5	15	35	18	9	..	15	45	142
Percentage....	2.15	6.0	11.3	3.4	4.3		13.2	11.0	7.5

TABLE 4.—NATIONALITY OF DRINKERS, 1,525 CASES REVIEWED.

	Private Practice, 242 cases.	Knoxville, 312 cases.	Mt. Pleasant, 150 cases.	Cook Co. Hosp., 53 cases.	Delir. Tremens, 560 cases.	Cirrhosis, 210 cases.	Total, 1,525 cases.	Total Percent- age.
United States.....	126	249	137	23	262	96	780	51.35
Germans	185	14	3	6	40	39	287	18.65
Irish	27	12	1	8	157	22	227	14.68
English (Scotch, English, Canada) .	4	6	2	9	55	29	105	6.8
Slavs (Poles, Bohemians).....	2	0	1	2	9	13	27	1.7
Scandinavians (Swedes, Norwegians, Danes.....	7	22	4	3	29	5	78	5.12
Dutch	0	1	0	0	1	0	2	0.12
French	4	0	2	2	4	3	15	0.96
Italians	0	0	0	0	3	3	6	0.42
Africans	0	2	1	0	0	0	3	0.20

TABLE 5.—DRINKING AMONG WOMEN. GRAND TOTAL, 32,944 CASES.

	1,328 CASES.			GERMAN STATIS- TICS, 22,103 CASES.	FRENCH STATIS- TICS, 5,881. CASES.	ITALIAN STATIS- TICS, 3,628 CASES.
a. My own 242 cases	232	10	4.1	a. Waldschmitt's a. Vetault : 21,360 cases : Men..... 19,869 Women... 1,492 7.0 per cent.	5,063 Men..... 5,063 Women*... 818 13.8 per cent.	a. Legrain : 13.8 of 38,764 total admission to insane asylums, 1903-1905, were alcoholics :
b. Cook Co. Hosp., med. cases, 52..	41	11	21.5			
c. Mt. Pleasant, 150 cases.....	144	6	4.0	b. Moch : 742 cases : Men..... 682 Women.... 55 7.5 per cent.		Men..... 3,398 Women... 323 9.04 per cent.
d. D. T. cases, 560, Cook Co. Hosp., 1897-1901.....	521	39	6.9			
e. Alcoh. Cirrhosis in Cook County Hosp., 210 cases.	164	46	21.8			
f. Ternet., 114 cases.	71	43	37.7			

Average %, 11.51. Average %, 7.25 Average %, 10.85 Average %, 9.04

* Quoting from Dr. Plane, who as alienist in an insane asylum had 5,887 cases of psychopathy in his own clinic, all due to alcoholism. In the ten last years of his observations the percentage of drinking women rose from 10 per cent. to 15 per cent.)

TABLE 6.—OCCUPATIONS AND ALCOHOLISM (4,490 CASES COLLECTED IN ALL). AMERICAN STATISTICS, 1,092 CASES.

	1. Private Practice.	2. Mt. Pleasant.	3. Cook County Hospital.	Average Percentage.
Laborers	114	41	213	33.7
Butchers	30	3	6	3.56
Carpenters	26	4	21	4.68
Printers	2	..	12	1.3
Painters	12	12	19	3.8
Masons	9	4	4	7.6
Mechanics	12	25	107	13.25
Clerks	9	29	109	13.7
Liquor Traffickers	9	1	57	6.58
Bakers	3	0	17	1.9
Railroadmen	2	2	21	2.27
Farmers	2	21	0	2.18
Druggists	0	1	3	0.34
Physicians	0	3	3	0.54
Lawyers	0	3	3	0.54
Barbers	0	0	16	1.4
Merchants	2	..	6	0.72
Cigarmakers	0	0	5	0.46
Tailors	0	0	8	0.72
Housework	9	6	60	6.84
Dressmakers	0	..	9	0.86
Office girls	0	..	6	0.56
	242	150	700	

ITALIAN STATISTICS. ITALIAN DRINKERS, 3,398 CASES.

	Men, %.	Women, %.
Laborers and mechanics.....	53.6	13.1
Farm and kindred work	22.0	11.0
Without information	3.0	..
Soldiers	0.9	..
Students	3.1	..
Clerks	10.0	6.0
Liquor traffickers.....	4.9	1.9
Retired persons (reuters).....	2.7	3.9
Housework .....	..	57.0

DISCUSSION.

DR. J. E. WALTON, of Medora: On behalf of the Society, I wish to thank Dr. Hultgen for his classical paper on a subject which should appeal to every one of us. There is not a man in this hall who has not to face some of the problems the doctor has worked out for us. I wish to call attention to one important point, and that is, we may never see the last of these alcoholics. They came in with Noah, and we have had alcoholics ever since, and I presume we will have them all down through the ages. I believe we will have less and less of these cases to deal with in Illinois on account of the local option movement. We should follow up the statistics, and watch those points that need our closest attention, and let us do the best we can for the poor alcoholics.

DR. HULTGEN (closing the discussion): In reference to the death rate among drinkers. In my practice I have been able to keep track of 1,719 cases. Total deaths 127, or 7 per cent. This is large as compared with the United States census. Among 256 drinkers, there were 39 deaths in all, a percentage of 15.24. Taking all the deaths in my cases, which were 127 in four years, I find among them 36 who were tuberculous, a percentage of 28.8; but taking 39 deaths among alcoholics, in 17 cases there was tuberculosis, (in 3 tubercular meningitis). This means that 41 per cent. of 39 deaths among alcoholics are due to tuberculosis. I have here a report from a Paris hospital covering the years 1906-7, showing 8.6 per cent. deaths in the hospitals there as having been *due directly* to alcohol. In a sanatorium, very much like the one at Bartonville, Ill., Noeggerath shows that 10.2 per cent. of the deaths were due to *alcohol directly*. In my own cases I find that alcohol was the *direct and primary cause* of death in 5 cases, i.e., 12.7 per cent. of deaths.

ILLINOIS MEDICAL JOURNAL

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SEPTEMBER, 1908.

NOMENCLATURE OF PULMONARY TUBERCULOSIS.

We are publishing as a supplement to this issue, a classification and nomenclature of pulmonary tuberculosis, as adopted by the National Association for the Prevention of Tuberculosis.

There are many varied classifications of this disease found in our standard text-books, many of which are crude and not in conformity with the present methods of treatment. The crusade against tuberculosis has prompted the leaders to adopt a classification which can be made universally practicable. By this means much can be done to cure already existing cases, as well as the establishment of what we may term as anticipatory cures. The various tuberculosis institutes and sanatoria have adopted this classification, and most heartily recommend it to the practitioners of medicine, to whom practically all cases of tuberculosis come first.

It is of special importance that the family physician should be alive to the early manifestations of this disease, and should recognize the importance of sufficient length of time for the treatment to effect a cure. Furthermore, he should be thoroughly familiar with those stages of the disease as classified under the head of "Classification of Results." Untold harm may be unwittingly done by the failure of the physician to recognize the difference between a case which is "apparently cured" and one which is "cured."

We most heartily commend this supplement to our readers, believing that it can be used to great advantage in the detached form, by hanging it up in a conspicuous space in the office for quick and ready reference in your work in fighting tuberculosis. Illinois, officially and unofficially, has made marked progress in the crusade against tuberculosis. Much work is yet to be done, and we feel that no small part must come directly from the members of our association.

All matters of state medicine for the betterment of public health must not only have the approval, but must have the impetus that can only come from a strongly organized body of sincere and hard-working physicians.

PHYSICIANS AND POLITICS.

Activity on the part of physicians was very noticeable at the recent primary election. Rarely, if ever, have the doctors shown so much activity in Illinois politics. The reason for this activity is not far to seek. The state institutions in this state were originally established largely through the efforts of the physicians, and especially those composing the Illinois State Medical Society, and they have always been a subject of deep interest and solicitude to our profession. In the recent campaign one of the chief issues at stake was the management of the state charitable institutions, which ever since Governor Altgeld came into office have been so productive of political spoils. They involve the expenditure of nearly one-third of the appropriations made by the legislature, and naturally, in the minds of the physicians, at least, become the paramount issue in a state political campaign. This was peculiarly true of the recent primary campaign, because the work of the State Board of Charities appointed by Governor Deneen was vigorously attacked by his opponents. No body of citizens are so well acquainted with the high qualifications and honest and unselfish labors of the present State Board of Charities, and especially of its distinguished president, Dr. Frank Billings, as the physicians, who naturally resent any effort to return the institutions to the spoils system of the recent past.

While the capacity of the Board of Charities is almost entirely advisory, and it has few executive rights or administrative functions, it has been appointed for the purpose of conducting an impartial and non-partisan investigation of the conditions at the various state institutions for the purpose of making recommendations for the improvement of management, medical supervision, methods of care and treatment, buildings and equipment. The high esteem in which our present State Board of Charities is held by the physicians is shown by the unanimous vote of approval by the House of Delegates, representing over 5,000 members, at the last annual meeting in Peoria. The attitude of Governor Deneen toward the recommendations of the Board of Charities and toward the state institutions, as well as the work of the board, was approved. The majority of the state institutions are semi-medical, and require med-

ical supervision. Therefore, the ultimate solution of the questions arising in connection with them must largely be made by the medical profession, and in no campaign has this fact been made more prominent.

The literature sent out by one side contains statements from some of our well-known members, also the actions of various component medical organizations and of the state society relative to the management of state institutions. There was also recently organized a "Physicians' League of Illinois," the purpose of which we have noted in a previous editorial. A few days previous to the primary election this league sent circular letters to the physicians with recommendations for nominees for the various offices, stating that after investigation they believed these persons "to be friendly to the advancement pertaining to matters of the medical profession and medical subjects of the state." Whether this organization was for political purposes only, as it seemed to initiate those measures which had already been advocated and supported by the regular medical organizations, or whether this new league was absolutely sincere in its methods, we will not discuss. The organization of such a league, even for temporary campaign purposes, shows plainly that our great political bodies, in matters of such importance as the management of state institutions, recognize the force and strength of the support which may be given by the medical profession. The best service which our profession can do the state at the present time is to study these problems carefully, interrogate all candidates for governor and for the legislature thoroughly, and let it be known that they will only support those who stand for high standards in management, equipment and treatment and the abolishment of all forms of political spoils in our state institutions.

PREVENTIVE MEDICINE.

We venture to state that no field in medicine has been as productive of practical beneficence to mankind as the results obtained in the field of preventive medicine. Our national organization, the American Medical Association, has this year given recognition to this fact by electing to its highest office a man whose work in the department has made him known more widely than any other single individual, to all of those either directly or indirectly connected with the construction of the great Panama canal. We might go one step further and say that Colonel Gorgas, by making habitable the Isthmian zone, has made possible the building of this inter-ocean canal.

Again, the care of public health as vested in our various state, city and county health boards, gives evidence of the progress which is being made to control and finally eliminate all preventable diseases. These various boards of health, although not perfect in every detail, are being driven by the medical profession to that state of complete organization and competent administration which will result in the scientific study and prevention of infectious diseases. Already the general practitioner

is beginning to feel the effect of his own labors. Epidemics of diphtheria, scarlet fever, typhoid fever, smallpox, etc., of the broad and alarming distribution, have long since ceased. The doctor is finding himself gradually losing business, but gaining ground in the most magnificent work possible to the powers of man, the work of saving human lives, and preventing diseased conditions.

The organization of the profession has repeatedly met with defeat and discouragement at the hand of legislative bodies. They have failed to be convinced that the good which we seek is for the larger public and not for ourselves. So long have members of our legislative bodies been in that business for self gain, rather than the broad public good, that it is difficult for them to conceive of any organization with the high purpose of bettering the physical and mental conditions of human sufferers, and preventing the well from becoming sick.

This question has been discussed in medical society meetings, has been written of at length in medical journals, has been talked to the people through public lectures, but not until recently has the lay press taken cognizance of these efforts and sincerity of these purposes. We are indebted to *Collier's Weekly* and the *Ladies' Home Journal* for the initiative in the crusade against patent medicine, and so-called proprietaries. It is with pleasure that we read in a recent issue of *Collier's Weekly* an editorial comment on "What It Means," and "Expressed in Dollars," in which the editor discusses how to understand the real meaning of disease in the universe.

We feel that we can not do better than quote these editorials in full, for we believe that such writings in the lay press will give the greatest impetus and most valued co-operation to our organizations in their efforts to arouse public sentiment to such a degree that the people will demand of their legislators that they vote to appropriate sufficient sums of money to care for the sick poor, and establish competent boards of health from whom the people will demand that they shall use all best means to rid our land of the dread infectious diseases.

"WHAT IT MEANS.

"How many understand the real meaning of disease in the universe? What imagination can grasp even the direct suffering it causes, to say nothing of the indirect? How much does the decreased death rate of children mean to women in this world? The population in the future will be kept up with a fraction of the births needed in the past. Many times fewer small children will die; the length of life for adults will be still farther extended; those who live will know infinitely less suffering. The average length of life has already been increased from twenty-one and a quarter years in the sixteenth century to forty and a half in the eighteenth. The death-rate from diphtheria has been reduced from 40 or 50 per cent. to less than 10. The British in the Boer war lost from typhoid more than those killed by wounds received in battle. In the Spanish war one-fifth of the soldiers in our national encampments had typhoid, and the present situation leads experts to believe that in another

war this record would be repeated. How easy it is to avoid, however, was shown by the Japanese. General Oku, in an active campaign of seven months, had 187 cases to 100,000 men. Furthermore, the Japanese learned so much between the Chinese war and the Russian war that dysentery was about one-sixth as prevalent, malaria about one one-thousandth, and the cholera cases diminished from 7,667 cases to none. Many of us are able to remember when yellow fever raged: in 1878 in Memphis, a city of 19,500 people, there were 17,600 cases of this disease, with 6,000 deaths. General Wood said that the discovery of the method of transmission of this disease resulted in the saving of more lives each year than were lost in the Cuban war. Before Jenner's discovery, small-pox killed one-tenth of all the people on the globe and disfigured nearly twice as many. Since then it has existed only because of prejudice against vaccination. In Prussia, where vaccination is compulsory, the mortality has been reduced to one in about 300,000. In Paris, on the other hand, where vaccination is not compulsory, between 1870 and 1895 there were over 20,000 deaths. Before the discovery of Yersin's and Haffkine's serums the mortality from bubonic plague was over 90 per cent. In London alone, in 1348, 100,000 fell victims to the disease. These are a few examples which show what intelligent study means in the sum of human misery and happiness."

"EXPRESSED IN DOLLARS.

"Now put it into money, this same saving to the race through intelligent observation. Hunter has estimated the average cost of preparing a man for usefulness at \$1,500. The loss of 400,000 workers, which occurs every year from diseases that are preventable, represents, therefore, an annual loss to the country of \$600,000,000. On Hunter's estimate, the lowered death-rate of England in about ten years would mean a capital saved of \$1,285,206,000. The epidemic of 1891-'92 cost Philadelphia an estimated loss of about \$22,000,000—to railways, hotel-keepers, merchants, manufacturers—for care of sick, loss of time, and expense of burial. A policy of prevention, on the other hand, would have cost about \$700,000. The discovery of the yellow-fever mosquito is supposed to save us more money in each single year than was spent upon the entire Cuban war. If we could master tuberculosis the saving in money in the United States would be \$330,000,000 per year. Is it any wonder, then, that the best physicians are heart and soul in the study of prevention? Dr. N. E. Ditman, in the *Columbia Quarterly* for June, has a powerful plea for a school of sanitary science and public health. To the large body of millionaires who are regular *Collier* subscribers, that essay is sincerely recommended."

PREVENTIVE MEDICINE AND FEES.

In our last issue we printed an editorial on the "Adjustment of Fees." We gave you some of the sentiment which exists as to the disproportion between the fees obtained by surgeons and the fees obtained

by physicians, the former requiring largely technical skill and the latter requiring diagnostic ability and the responsibility, not only for the advice for surgical interference, but responsibility for the ability of the surgeon whom he calls to operate. This condition of affairs has resulted in part because of the growth of preventive medicine. The general practitioner, because of his small fees, feels that it is necessary for him to do his own surgical work that he may receive sufficient remuneration for his needs. We believe that a sharp distinction should be drawn between medicine and surgery. It is fair to conclude that the man who is skilled in surgical technic is better equipped to do surgical operations and meet the emergencies which may arise at any time during such an operation than is the man who only occasionally has the opportunity to make a major operation.

On the contrary, we are firmly of the belief that the physician who has the care and management of medical cases, who intelligently studies the action of drugs and who carefully studies the methods of treatment of diseases other than surgical, is the man to be trusted with cases which do not require surgical interference.

It has been a frequent experience of physicians that they have had great difficulty in collecting fees for medical service, where the patient had not hesitated to pay a large fee for a surgical operation which this same physician advised. The public has been rightly educated to believe that surgical operations are expensive. They have not been taught to believe that medical services are of equal importance to the patient and of equal value to the patient. It will necessitate a full cooperation on the part of surgeons and physicians in fully convincing the patients that good medical service is valuable and should be properly compensated for. The evolution of the adjustment of fees involves the very practical question of the effect upon the earnings of the general practitioner. In truth, his work must be careful, his examinations thorough, and he must give the very best to his patients, for which he should receive adequate remuneration; but, added to a very large bill for a surgical operation, we may ask what of the patient's pocketbook?

We are of the opinion that this matter merits further consideration, and we should be pleased to hear from those who are giving the subject thoughtful attention. We want both sides of the question discussed, so that good may be obtained from it. The medical profession is determined to have placed on the statute books, the proper kind of laws for the regulation and control of medical practice in the various states. It means the continuation of preventive medicine. When prophylaxis has reached its ideal consummation, the result will be a full extinction of preventable diseases and a consequent material loss to the general practitioner. Such an ideal condition cannot be hoped for in the near future, but the gains in that direction are so rapid that the financial loss has already been felt by the practitioners and should be adjusted, for nothing must stop the onward progress of preventive medicine.

ADVERTISING.

Look again at our advertising pages. We have previously written of the elimination from our pages of all advertisers whose products have not been passed by the Council on Pharmacy and Chemistry of the American Medical Association. This campaign for clean advertisements in your JOURNAL, although it entails the loss of hundreds of dollars which might be obtained, nevertheless is to the credit of the medical profession of Illinois. It is to our mutual interest to have THE JOURNAL make for all that is scientific in the practice of medicine. All, for too long a time, the nostrum vendors have repeatedly filled with their advertisements the advertising pages of reputable journals. We are now in our second year of clean advertising and as rapidly as possible contracts with firms whose advertisements were objectionable were cancelled. We ask cooperation in building up the business department of your JOURNAL by giving your support to those who advertise in it. It is very little trouble to mention in your letter to the firms from whom you purchase that you saw their advertisement in the ILLINOIS MEDICAL JOURNAL. Likewise it is only fair that you should give your advertisers a fair share of your business. We cannot obtain new business unless we can assure our advertisers that it pays to take space in THE JOURNAL. It is entirely a business proposition with them, and it lies with you, the readers and likewise owners, to see that it pays to advertise in the ILLINOIS MEDICAL JOURNAL. Be fair, and when you desire to purchase any article give our advertisers the preference if they can show you that their goods are equal to or better than you can buy elsewhere. The greater the number of advertising pages the greater are the possibilities open for broadening the scope and work of THE JOURNAL. It costs considerable money to publish and print a publication such as this one, which you are obtaining at a very nominal cost. Your cooperation in the business department, as well as in all other departments, is not only solicited and desired, but indeed is one of your privileges.

 EDITORIAL CORRESPONDENCE.

Heidelberg, Aug. 1, 1908.

DR. GEORGE E. BAXTER, ASSISTANT EDITOR, CHICAGO.

Dear Doctor:—My stay in Heidelberg closed to-day, and before leaving the beautiful city on the Neckar, I have thought that it might interest the readers of THE JOURNAL to hear something of medical affairs at this, one of the oldest universities on the Continent. Every summer three or more of the German universities give what are known as *Fortbildungskurse*—exhibition courses, I suppose, is a good translation of the term—for practitioners, lasting two or three weeks. One of these courses was given here from July 13 to August 1 and was attended by some twenty-five practitioners. The foreigners, six in number, were from Hungary, Bohemia, Honolulu and the United States. Nearly every

member of the medical faculty has had a part in the program. The course began at 7 a. m. and lasted until 7 p. m. Some of the practitioners heard some lecturer every hour of the twelve. Just how much of this concentrated extract of medical science they were able to absorb I can not say, but there certainly was an opportunity to "soak up" a great deal. The number in attendance was not large, consequently there was no complaint concerning crowding. A large proportion of those in attendance were foreigners, especially Americans, and this serves to call attention to a certain feeling toward Americans. There is a tendency to say that the university courses are for Germans only, yet I believe that any American with a sincere desire to learn, a willingness to conform to the customs of the country, and enough modesty to be polite, will be welcomed. It is unfortunate that some of our countrymen try to make "Cook's tours" through the clinics and forget all ideas of propriety in so doing. It is doubtless these "hustlers" that give us a bad reputation in foreign lands. I happened to see one of these gentlemen to-day. Professor Krehl gave his clinic with his gown over his dress suit, intending to go at once to the unveiling of the Brunsen memorial. Just as the clinic closed our hustler, speaking English, and I fear he was an American, entered the rear door, hurried forward to present his card to the professor, who very properly and truly told him he could not talk with him, as he had another engagement, and turned him and his card over to an assistant. The situation was awkward for all concerned and embarrassing for those who knew the circumstances. My chagrin was still further increased when I saw this party an hour later boarding a train for Switzerland. His stay in the hospital grounds was certainly not over fifteen minutes, but he will doubtless at home recount his wonderful investigation of the clinics.

As I attended only a few of the courses I can give only a short account of those teachers I came in contact with. Professor Czerny, with the honorary titles of privy councilor and excellence, recently retired from the chair of surgery in the university, has given six lectures on the treatment of cancers by fulguration, x -ray and radium. These lectures have been given in the Samaritan House, a modern hospital building erected by private donations, but an integral part of the school. Professor Czerny is devoting the evening of his life to the enormous problem of malignant diseases. Probably no character in the profession is so well equipped to undertake the solution of this riddle of the medical sphinx. Still in the enjoyment of all his faculties, he is testing all the modern methods of operation and treatment of the disease when already established. To this end he brings his forty-three years' experience as a diagnostician and operator in one of the largest clinics in the world. Besides surgical means, Professor Czerny is using x -ray, radium and fulguration, or the high frequency current applied in conjunction with a spray of carbonic oxid gas. He tells me he has been using the fulguration treatment since last December and is often able to accomplish as much in one fulguration of ten minutes as with x -ray for several weeks.

In many of the worst cases this treatment serves to make a suppurating, foul smelling growth free from odor and after a time free from pain. It is necessary to give chloroform during the fulguration and the carbon dioxid acts as refrigerant and thus the sparks are not hot, but cold. After the fulguration a 5 per cent. anesthesia salve is applied, as the wound remains very painful for a time. Atoxyl injections are made intravenously, but no report has been made of their efficiency. Pure acetone is applied to cancers of the cervix uteri with good effect. The application lasts one hour. A visit through the wards of the Samaritan House was one of sad interest. Such a collection of distressing cases is seldom to be seen. They have come in their extremity from all corners of the Continent, seeking deliverance from an impending fate. That many of them come too late is certain, and that Professor Czerny will get little credit for those he fails to cure, no matter how great the effort he makes, is a phase of human nature familiar to every practitioner of medicine. Czerny's surgical assistants are Drs. Verner, Von Eickhorn and Teller.

In addition to the staff of surgical assistants, two other departments have been established. One on Parasitology, presided over by Professor Von Vasiewlewsky, with Dr. Hirschfeld as first assistant, and another on Chemical Biology, whose chief is Professor Von Dungern, and an assistant, Dr. Cocker, said to be an American. A visit to these departments showed them to be apparently well equipped to carry on this work. A large number of animals are required, varying in size from the mouse to the horse. Experiments are being made here along the lines probably first laid down by the Pasteur Institute in Paris. They involve problems little understood by the ordinary physician. The rapid development of this side of our science is indicated by the size of what is entitled a handbook of the technic and methods of experimental immunity, edited by Drs. Kraus, of Vienna, and Levaditi, of Paris. It contains about one thousand pages. In addition to the members of the staff in the various departments, there are voluntary assistants in each, so that the number of trained men available is something near twenty. The discovery of the spirochaetae pallida as the certain cause of syphilis has led to investigations along new lines. We await with confidence the announcement of the discovery of the cause of malignant growths. When it is made we will all wonder why it was not found before.

To Professor Czerny and his assistants I wish to return here my heartiest thanks for courtesies and best wishes for the success of their efforts. May the motto of the hospital, "In Scientia Salus," be again vindicated. The other departments I will take up in another letter.

Yours respectfully,

G. N. KREIDER.

Scientific Editorial

CHOLECYSTITIS.

Next to appendicitis, no disease of the abdomen has attracted so much attention during the past ten years as inflammation of the gall bladder and gall ducts, and few subjects have undergone such a complete evolution. Appended to this may be found, by way of illustration, a list of the original articles on this subject which have appeared in the *ILLINOIS MEDICAL JOURNAL* and the *Journal of the American Medical Association* during the last two and a half years. It is said that over one thousand articles on this subject are to be found in the Medical Literature of the past ten years. Only a few years ago the profession had a very uncertain understanding of "gallstone disease," while "catarrhal jaundice" was a term used to designate an indefinite group of symptoms covering practically all the other diseases of these tracts not covered by "gallstone disease" or "gallstone colic." The element of infection has only recently been accorded a position of importance among the etiological factors, and as the study of the relation of infection to diseases of the gall ducts progresses, it has assumed more and more importance until some observers consider it to be the cause of the gallstones as well as all the other diseases of this region. The new nomenclature of these diseases would seem to divide diseases of the gall bladder and bile tracts into two classes: First, inflammatory diseases; second, tissue degenerations.

It is quite worth while from every point of view for the general practitioner to carefully review the literature of this subject, and especially to revise his interpretation of such symptoms as "substernal pressure," "a boring sensation behind the middle or lower fourth of the sternum," "vague sensation of discomfort at the pit of the stomach," "persistent desire to belch," "pain in the region of the gall bladder or over the pyloric end of the stomach or to the left of the median line," "chill followed by pain in these regions," "pain in the epigastrium or between the shoulder blades or under the right shoulder blade" and "vomiting followed by severe pain." These symptoms, with the absence of fever, leucocytosis or jaundice, or accompanied by "soreness in the epigastrium," "epigastrium pressure," "dyspeptic disturbances," "flying pains," "pains simulating other disorders, as of the stomach or heart," "unnatural mouth conditions," "loss of appetite" and "loss of weight," should always lead us to make a very careful physical examination which will probably confirm the clinical picture of infection of the gall bladder or bile ducts by the discovery of local tenderness in the region of the gall bladder, and bimanual examination may reveal a local swelling in the same region. Rigidity of the upper portion of the right rectus muscle may assist in arriving at a correct diagnosis in acute cases.

In chronic cases the history of such an attack or attacks of illness accompanied or followed by one or more of the above symptoms should be regarded as of very great importance. Wherever a patient has had

periodical attacks in which several of the above symptoms of disease of the stomach, heart or lower abdomen are absent, we will usually find them due to infection of the gall ducts or gall bladder. In one patient the digestive disturbances will be most prominent, another will have continuous feeling of distress in the epigastrium, while in a third, pain behind the sternum, between the shoulder blades or under the right shoulder will be most prominent, and a fourth may have continuous tenderness over the region of the gall bladder. A history of attacks presenting some of these symptoms closely following child-birth or typhoid fever, should arouse suspicion. We must remember that only about 25 per cent. of patients suffering from infection in this region will complain of digestive disturbance and a considerable number will only present symptoms of abdominal pain of an indefinite character. Not more than 25 per cent. will give a history of typical attacks of acute cholecystitis and a much smaller percentage will give a history of attacks of gallstone colic or jaundice.

The diagnosis in the great majority of cases will only be made after a careful study of the clinical symptoms presented by the patient over a considerable period of time confirmed by a physical examination. Where the symptom-complex is somewhat doubtful and the physical examination uncertain, the exclusion of disease of the stomach or other organs will enable us to arrive at a reasonably certain diagnosis.

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COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The Adams County Medical Society met in the Elks' club rooms July 13, with the following doctors present: Dr. J. B. Shawgo, president, and Drs. Nickerson, Koch, Shepherd, Miller, Millen, Wessels, Heitman, Pitman, K. Shawgo, Center, Robbins, Riee, Gilliland, Kidd, Lierle, Christie, Jr., Werner, Knox, Mereer, Gabriel, Brenner, Blikman, E. Zimmerman, Hart, Ashton, Spence, Haxel and Wells. Dr. G. L. Thompson of Kellerville, was elected to membership, and Dr. J. W. Pettit of Ottawa, and Dr. J. R. Ballinger of Chicago, were elected to honorary membership. Dr. J. A. Koch made report for the committee having in charge the annual outing and excursion of the Society in August. This is usually a very successful event and is participated in by the profession of this part of the State. A large company had luncheon together at the Hotel Newcomb. In the afternoon Dr. J. R. Ballinger of Chicago, was introduced and delivered a splendid paper on "Diseases of the Stomach; Indications for Surgical Treatment." This was an admirable presentation of the subject and very instructive to all who had the pleasure of hearing Dr. Ballinger. A hearty vote of thanks was voted the speaker at the conclusion of his address.

C. A. WELLS, Sec.

DISEASES OF THE STOMACH INDICATIONS FOR SURGICAL TREATMENT.*

J. R. BALLINGER, M.D.

CHICAGO, ILL.

In order to arrive at a proper indication for surgical treatment of the stomach, I beg to call attention to the normal function of the stomach and then trace it to the abnormal. Normal gastric juice is composed of hydrochloric acid, pepsin, mucin, inorganic salts and rennin. Hydrochloric acid, which concerns us most in this paper, varies normally in different individuals and at different times in the same individual, but it may be put at from 2 to 3 per cent. of the total fluid secretion of the stomach in twenty-four hours—which is from 10 to 20 pints. Pepsin, which has the power to act only in acid media, has the power with its combined action of hydrochloric acid to change proteid food into peptones with a few intermediary steps as: The formation of acid albumin or syntonin, then primary and secondary proteoses, and finally by further action of the ferment to peptones.

The secretion from the mucous glands lining the stomach have the function to protect the inner walls of the stomach and claimed by some to be the chief factor in preventing the stomach from self-digestion, along with viability, and the alkaline blood floating within the gastric vessels. Rennin, an enzyme, that coagulates milk and after the coagula it is separated into casein and whey. The casein in human milk is not a solid but loose floeculi. After the swallowing of an ordinary meal consisting of proteids, carbohydrates, and fats, it is immediately changed into acid chyme. This allows the ferment to act upon the peptones, the carbohydrates and fats are unchanged, the fats are liquefied by the heat of the body, and mechanically kept in mixture with the other food substances. This is the condition in the stomach as the peristaltic wave begins at the fundic end of the stomach and increases in intensity until they reach a maximum at the transverse band, which contracts so markedly as to divide the stomach into two parts, then follows the contraction of the antrum and portions

* Read before the Adams County Medical Society, July 13, 1908.

of the food are forced through the pylorus, and what food is left sets up an anti-peristaltic wave and the contraction again starts at the fundus.

In the diagnosis of stomach diseases I wish to call attention to eight questions that Herr Prof. Conheim of Berlin taught me last summer. It is his claim, and while he is a little dogmatic but positive enough to be a good teacher, that 75 per cent. of stomach diseases can be diagnosed without physical or chemical analysis. The questions are: 1. What is the age of the patient? 2. How long sick? 3. Continuously or periodically? 4. How is swallowing? 5. Pain or pressure? 6. If pain, where and when? 7. Vomiting and when? 8. Do bowels move?

Diseases to be first considered are hyperchlorhydria and gastric ulcer. I combined these because they are inseparable and it is more than possible that the persistent hypersecretion of hydrochloric acid is the most important factor in the study and treatment of ulcer, and it is invariably present in increased amount in this disease.

Hyperchlorhydria is the condition that the name suggests, an excess of hydrochloric acid in the stomach. Acid is the normal constituent of gastric juice up to .2 or .3 per cent. Above this, as indicated with decinormal sodium hydroxid, indicator is abnormal. We know that acidity is increased after eating and following emotional states, as fear, shock, etc., but the constant superacidity above 60 per cent. is abnormal and gives rise to the symptom complex of pain on pressure coming on about two hours after eating, the pain is usually of burning and distress of fullness. Sour eructations take place and the patient is nervous and restless. The bowels are irregular, moving sometimes loose, with discomfort before stool, and at other times constipated.

Gastric ulcer occurs in women in 60 per cent. of cases and usually between the ages of 20 and 30. In males in 40 per cent. and most frequently between the ages of 30 and 40. In females the condition of chlorosis predisposes to gastric ulcer as before stated because of the lessened alkalinity of the blood. (The Alkalescent theory of Conheim.) Virchow's theory of it resulting from the plugging of an artery by thrombosis or embolism is, of course, true in a certain number of cases. Gastric or peptic ulcer occurs in the stomach and duodenum as far as the papilla biliaria. This is significant to account for an ulcer by the excessive amount of acid. It occurs most commonly in the posterior wall near the pyloric region on the lesser curvature. Duodenal ulcer is not nearly so common and occurs most frequently in males. Ulcers are of two kinds, acute and chronic, or the so-called recurrent ulcer. The symptoms of ulcer are dyspepsia, which may be slight or of the most aggravated character. In a considerable proportion of cases nausea and vomiting occurs. The latter not for two or more hours after eating. The vomitus contains a large amount of hydrochloric acid. Pain is perhaps the most common and distinctive feature of ulcer. It varies greatly in character. It may be gnawing or burning, which is usually increased by taking of food. The pain may be paroxysmal, or the most intense gastralgia in which the pain is felt not only in the epigastrium, but is radiated back to the tenth or twelfth dorsal vertebra. The attacks are most frequently induced by the taking of food, but may occur at variable periods after eating.

Tenderness is a common symptom. It is most marked a little to the right of the median line just below the ensiform cartilage. Loss of weight is due to the anemia, either through the loss of blood directly or malnutrition. Hemorrhage is present in one-half of the cases. It may be slight or commonly is profuse. The vomitus usually contains bright red unaltered blood. In duodenal ulcer the blood is usually passed into the stools. Perforation occurs in about 6½ per cent. of the cases and always calls for surgical interference. Perforation occurs most frequently in acute ulcers, but may occur in chronic or so-called latent ulcers.

The symptom complex which follows gastric perforation is quite characteristic. If a gastric crisis occurs after a history such as has just been given with intense pain, collapse, retracted abdomen, rigid muscles, with pulse up to 150

or more, it is evidence that there has been a perforation of at least some of the viscera, and with the history it is reasonable to suppose the stomach. The leucocytic count is indispensable, for from a normal leucocytic count it jumps from 12,000 to 30,000 within a few hours, is an important diagnostic point. The operation should be done as quickly as possible after careful preparation, according to improved surgical technique. A median incision should be made down to the rectus, this muscle separated to the left of the median line, opening the peritoneum freely. This is sometimes accompanied with escape of fluids. The extravasated fluid is wiped away with sponges gently, never irrigate or wipe hard enough to cause any irritation of the serous surface because it only renders it more liable to absorb septic material. The liver should be raised upward and the stomach grasped with a firm grasp, breaking as few adhesions as possible and pulled downward and forward. After the perforation has been located it should not be curetted or excised, but closed with at least two rows of Lembert sutures. Care should be taken to invert the edges sufficiently to permit of a firm and secure union. Keen suggests that the line of a suture be covered with an omental graft. Before closing care should be used in looking for a second perforation. The stomach is allowed to recede into the abdomen with ample drains inserted of strips of gutta percha, one and one-half inches wide and of sufficient length to be securely pinned together on the outside. The peritoneum is sutured and the rectus muscle and skin are closed together. There is not much danger of hernia in these cases.

The technique of the operation for gastric hemorrhage is the same as for gastric ulcer. The entire stomach should be examined, giving special care to perigastric adhesions, and if the indurated spot can be found from the outside it may be excised. If not, there should be made an anterior longitudinal incision midway between the greater and lesser curvatures, enough to permit the introduction of the index finger. The posterior wall of the stomach should be examined through this incision. This can be accomplished by making an incision through the gastrocolic omentum and introducing the finger pushing the stomach forward. If hemorrhage is progressing at the time no trouble will be encountered. If not, a search for the induration or the enlarged vessel should be made. Failing in this a sponge may be rubbed gently over the mucous membrane and by this procedure the bleeding point may be found. The ulcer may be tied en masse or may be incised and sutured with two rows of sutures. The bleeding vessels should be tied outside the indurated mass.

I have spoken of the operation of emergency for gastric hemorrhage and gastric ulcer without gastroenterostomy. Now, we will consider the operation for artificial drainage of the stomach, as indicated in a certain number of cases of chronic dyspepsia due to diseased condition of stomach and duodenum. In operation for hemorrhage where drainage is desired, and in chronic ulcer where the condition may pass into malignancy and in perigastric adhesions with great pain and discomfort.

I should like to cite a case where I consider drainage desirable, where there is probably no pathological lesion or none except an intense and persistent degree of gastritis, where proper regulation with proteid diet will not control. A patient, usually a man between 25 and 45 years of age, who complains of periodic attacks of indigestion, having intervals in which he feels comfortably well, tells you that at times he can eat anything, but without any known cause he has a recurrence of pain coming on about two hours after eating and lasting for three or four hours, or until he takes food or drink or a small draft of soda solution. I have known patients to go to bed with a piece of bread and butter or a glass of milk within reach, for they have found by experience that the taking of food relieves them. These attacks usually occur in the early Spring when the weather is chilly. Warm Summer weather seems to agree with them. The patient tells his own story and is convinced himself that the taking of bland liquids and food are the best medicine for him. He loses weight in spite of his eating and is irritable and restless. A chemical analysis reveals an excess of

acid in the stomach, the presence of sarcine which is the evidence of gastric stasis. Cases of this type are often said to show Boas Oppler bacilli, but this is not a fact. They occur in the stomach only when there is no hydrochloric acid.

Mr. Moynihan, of Leeds, insists that cases whose symptoms have just been described are not cases of gastric erosion or gastric ulcer, but that they are cases of ulcer of the duodenum. He asserts that the pain coming on after meals at certain periods is caused by the passage of acid stomach contents causing the irritation of a duodenal ulcer. He is a man of vast experience with these cases, having reported more than 500, and it seems reasonable to suppose that many of the cases that we have before considered as cases of gastric disease may be duodenal ulcers.

I will now describe the operation of gastroenterostomy as practiced by Moynihan, Mayo, Robson, Dever and most of the surgeons of to-day. The posterior, no loop, gastrojejunostomy.

An incision about four inches long is made above the umbilicus, splitting the right rectus muscle about three-fourths of an inch from the median line. The stomach, the pylorus, the duodenum, the gall bladder and the bile ducts are carefully examined. The omentum, transverse colon, and the stomach are delivered and turned above the incision on the abdomen and covered with gauze wrung out of hot salt solution. A bloodless point in the transverse mesocolon is found and an incision is made into the smaller omental cavity. This is torn larger with the finger. The opening should be from one and one-half to two inches, or large enough for the posterior wall of the stomach to be pulled through, with the left hand above the omentum and colon, the stomach is made to protrude into the opening of the mesocolon. The posterior wall is caught with the fingers or forceps, care being used not to tear the stomach. A fold, three or four inches, is caught in the rubber-covered blade of Mayo's intestinal clamps. The clamps are applied either obliquely from the lowest part of the greater curvature toward the cardia, or vertically. I believe that the oblique application is to be preferred. When the anastomosis is made in this direction and the stomach is returned to the abdominal cavity both stomach and jejunum will sustain nearly their normal relation, there being no loop or twisting of the bowels, so that the stomach contents may pass uninterruptedly into the distal end of the bowels. The only change then from the normal relation and condition is the attachment of stomach and intestine and the gastrojejunal opening. Hence, there can be no vicious circle or regurgitant vomiting. Jejunal gauze wrung out of sterile salt solution is now applied under and around the clamps so as to protect the peritoneal cavity against any possible infection from leakage of the stomach or intestinal contents after the stomach and jejunum are incised. A portion of the stomach and intestines embraced in the clamps are brought evenly together so that the ends of the blades are at the same level at the bottom of the greater curvature of the stomach. The stomach and jejunum are now united by a line of continuous sutures including the serous and submucous coats, beginning at the shank of the forceps and continuing to the ends of the blades. The suture line is from left to right, from the proximal to the distal end of the bowel. The line of suture is never less than two inches, and in dilated stomachs it may be three and one-half inches, so as to guard against too much narrowing of the gastrojejunal opening after the stomach finally contracts approximately to its normal size. I use a Moynihan needle with a slot eye curved over half circle; linen or silk thread may be used. I leave a six-inch end at the beginning of the suture, and at the end of the first line of suture the thread is left long enough to complete the second line of serous suture around the gastrojejunal opening after the cut edge of the stomach and bowel have been sutured through all the coats entirely around the incision.

After the first line of sutures has been applied the stomach and intestines are incised $1/6$ and $1/5$ of an inch away from the line of serous suture down to the mucous membrane, which bulges in the wound and is excised; about one-half inch of the membrane is removed. This facilitates the correct apposition of

the serous, muscular, and mucous or through and through suture. The second suture begins at the proximal end of the jejunum and must include all the layers of stomach and intestines so as to put the cut edges into perfect apposition and leave no open raw surface. An end of this suture about six inches long is left and the suture is drawn sufficiently tight not only to secure perfect apposition, but to control hemorrhage. It is carried entirely around the opening and tied to the end of the suture left at the point of beginning. The clamps are unlocked and if any bleeding point is seen an interrupted suture is applied, but this usually is not necessary. With the first seroserous suture left long at the greater curvature of the stomach, a line of suture is now applied above and in front of the gastrojejunal opening to the point of beginning and tied to the end left. This is the continuation of the suture that includes the serous and subserous coat. The exposed parts of the stomach and bowel are now gently sponged with gauze wrung out of hot salt solution and allowed to fall back into the abdominal cavity. The omentum, transverse colon and stomach are again delivered on the abdominal wall and with a cat-gut suture the edges of the opening through the transverse mesocolon are attached around the gastrojejunal anastomosis. There should be about four interrupted sutures attached to the jejunum. This prevents hernia into the lesser omental cavity. The omentum, transverse colon and stomach are again allowed to return to the abdominal cavity, and the peritoneum is sutured with a continuous cat-gut suture. The rectus and skin are sutured together and the operation is complete.

These patients should be put in the Fowler position and no fluids given for twenty-four hours, when the giving of light liquid diet can be commenced without complication. These patients do as well as any patients where an operation upon the viscera has been performed.

CONCLUSIONS.

1. A certain number of persistent cases of gastritis that are not amenable to treatment, where there is great discomfort and probable formation of ulcer, should be drained.
2. Cases of acute and chronic gastric and duodenal ulcers that are dangerous to the life of the patient and are very liable to become malignant, should be drained.
3. In cases of carcinoma where the obstruction is great and partial gastrectomy can not be performed, should be drained.

BOONE COUNTY.

Regular Quarterly Meeting July 9, 1908.

The Boone County Medical Society met in the Y. M. C. A. parlors at Belvidere, Ill., Thursday, July 9, at 2 p. m. After transacting routine business, the symposium on Tuberculosis was heard. Dr. Willis Butterfield of Belvidere, and Dr. J. W. Pettit, our State Society president, presented original and practical papers. Dr. Stealy of Freeport, our district councilor, was also present, and helped to make the discussion bring out salient points.

President Pettit's presence was helpful and inspiring to us individually, and as a society. In the evening, Dr. Pettit addressed an audience, made up of the thinking people of the city that filled the Y. M. C. A. Auditorium, on "The Tuberculosis Problem." The lecture aroused much interest, and gave the people much needed information on this vital topic. The *Belvidere Daily Republican* was very accommodating in the publication of preliminary notices of the lecture, and afterwards printed it in full.

CHARLES R. SCOTT, *Sec.*

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held Dec. 10, 1907.

Regular meeting, held Dec. 10, 1907, with the President, Dr. Holinger, in the Chair.

Dr. E. Fletcher Ingals read a paper on

INTRANASAL DRAINAGE OF FRONTAL SINUS.

DISCUSSION.

Dr. H. Stolte, Milwaukee:—Is not the operation limited by a marked septum deviation?

Dr. Ingals:—Yes, that must be remembered.

Dr. Stolte:—I have employed this procedure in three cases, successfully in two cases. In the third case there was a marked reaction; an edema in the lower part of the nasal duct, and so much pain, that I took out the gold tube and treated through the opening, simply by syringing. The case terminated successfully.

Dr. Ingals:—You ought to have left the tube in place. I saw marked edema in one case, the patient being in the active stage of syphilis.

Dr. Stolte:—In my case there was marked deviation of the septum. I would like to ask Dr. Ingals whether he would do this operation in a hemophilic.

Dr. Ingals:—I would do the operation in any case. It is done so quickly that the patient could not bleed enough to do any harm, and afterward you can pack with gauze. I use cocain with suprarenalin and it stops bleeding at once.

Dr. Good:—How often does the tube cause irritation?

Dr. Ingals:—Never.

Dr. Good:—How often does it cause acute ethmoiditis?

Dr. Ingals:—Never.

Dr. Good:—What objection would there be in removing the anterior ethmoidal cells in every case?

Dr. Ingals:—I do not believe in doing a lot of things that are unnecessary, although it would not interfere with the operation.

Dr. Good:—If a larger cavity could be made so that the frontal sinuses could be examined and particles scraped out for microscopic examination, would not that be of considerable advantage?

Dr. Ingals:—It might in rare cases, but not usually. I have had two cases that seemed to indicate that a larger opening was necessary. At the orifice of the nasofrontal duct there was a valve-like arrangement of the mucous membrane, not enough to limit its caliber, but it acted in such a way that it would prevent air from going in.

Dr. J. C. Beck:—Do you always do this operation with the patient in the sitting posture?

Dr. Ingals:—In two or three cases I did it with the patient reclining; otherwise I always have him in the sitting posture.

Dr. O. T. Freer:—The claim is made that frontal sinusitis is accompanied in a very large number of cases by suppuration of the ethmoidal cells; that a simple, uncomplicated frontal sinus suppuration is a rarity. What is your experience in that regard?

Dr. Ingals:—If the frontal sinuses have been suppurating, the bur has opened them enough so that any other procedure was unnecessary.

Dr. W. E. Casselberry:—I have had occasion previously to express my admiration for the ingenuity which is exemplified in this instrument. It seems to fill the long felt need for an instrument with which one can with reasonable safety enter the frontal sinus through the nose. I have used it in one case successfully, three years ago, and I had an opportunity recently to examine the patient thoroughly, enabling me to report the result. The slight modifications which I used in the procedure were, I think, quite immaterial, although they satisfied me a little better at that time than the conventional method as Dr. Ingals has related it. For

instance, I did not use an electric motor, but substituted a plain, strong handle with which to rotate the burr by hand power, which worked all right. And I did not make the operation all at one sitting, but bored a little way in the first time, and about a week later bored in the rest of the way, and I was surprised at the ease with which I was able to make the large passage through to the frontal sinus. I did not use a gold tube or any tube, fearing that it might not be well tolerated, as it is a foreign body. The patient returned to his home in Wheeling, W. Va., and had his local physician, Dr. Ackermann, supervise the after-treatment. The patient soon reported that he was getting along finely; he regained his former good health, the discharge lessened in quantity until it became very slight, the headaches ceased, and his serious despondency and dazed mental state disappeared. About two years after the operation the physician in Wheeling, who had subsequently provided himself with the Ingals instrument and who was sufficiently expert in nasal manipulations, again passed it through to the sinus, although I do not think, from his account, that it was really necessary, rather as, he said, simply precautionary against narrowing. At the end of three years when I again had the opportunity to thoroughly examine the patient, I found the passage widely open, a washing canula easily passed; the man could do it himself, if it were necessary, which it is not often, the secretion being very slight.

I call this patient practically recovered, and I do not believe that these patients often do get entirely and completely well either by this or other methods. There remains a slight discharge, perhaps from the ethmoidal cells, but it is not always even of a strictly purulent nature, usually now mucopurulent, although at the time of an acute rhinitis, it is more nearly purulent. This is the degree of recovery which in my experience can be looked for from the operation rather than an absolutely perfect recovery, but it is recovery enough. The patient is relieved of all serious symptoms, and the trifling secretion left amounts to nothing. Personally, I would rather have that than an external operation, with even, were it likely, a perfect recovery.

Dr. O. T. Freer:—One condition contraindicating the intranasal opening of the frontal sinus should be mentioned. I refer to sinusitis frontalis exulcerans or exedens, as it is called by Killian. In this form of empyema of the frontal sinus the suppurative process has penetrated its walls by caries and direct perforation or else by the route of lymphatic extension or septic vascular thrombosis. Foci of septic inflammation are thus created outside of the confines of the sinus, forming most often in the orbit, but sometimes, after passing through the posterior sinus wall, subdurally or in the frontal lobe. The usual extensions of the suppurative process beyond the limits of the sinus into the orbit are commonly accompanied by such marked swelling of the integument of the forehead and lids that their recognition is comparatively easy. Where suppurations external to the sinus exist the radical opening of the sinus from without is the only proper procedure. I have had the honor to be associated with Dr. Ingals in his careful cadaver investigations and operations during the construction of his method of intranasal opening of the sinus, and I regard it as so well planned and so perfectly adjusted to the anatomical conditions found that I can conceive of no other way of entering the frontal sinus through the nose which so perfectly combines safety with certainty.

Dr. George E. Shambaugh:—I have little doubt but that the majority of cases of frontal sinus disease are better taken care of by intranasal work than by external operation. In the acute cases it is rare, indeed, that one must do more than apply local astringents or adrenalin about the middle meatus. In chronic cases, as a rule, the patient is, I believe, best treated by intranasal work, and most cases are treated satisfactorily without even using a burr to open the nasofrontal duct, doing no more, indeed, than to remove the anterior end of the middle turbinated body, thus allowing free escape of secretion from the sinus. In many cases I have seen there was apparently a complete cessation of suppuration in chronic cases following this procedure, and in most cases a complete relief of annoying symptoms. I think that these patients are usually better off than when operated on externally.

Dr. R. H. Good:—I had a few patients operated on by the intranasal route, and an acute ethmoiditis developed in several instances. Since then I have removed the anterior ethmoid cells entirely with more satisfactory result. Furthermore, I did find a case in which the cannula could not be passed into the frontal sinus after the anterior ethmoidal cells had been removed.

I consider that Halle's method is dangerous because the bur could penetrate the dura. I believe in a large opening, so that the frontal sinus can be examined and eurented, if necessary. I do not believe in using a gold tube and cannula. Treat the opening with silver nitrate, to keep it open, and patients get well quickly.

Dr. Otto T. Freer presented a specimen of a typical bony deflection beginning far back in the nose, and which can be removed easily by submucous operation.

Dr. Geo. Paul Marquis demonstrated some new instruments devised by Killian for use in bronchoscopy.

SARCOMA OF ROOT OF TONGUE.

Dr. A. M. Corwin reported this case. The man had lost in weight but complained mainly of a sensation of a mass at the root of the tongue. Family history was negative, as was the personal history, except for a gonorrhoea and a complicating cystitis. A growth was evident on examination, occupying the base of the tongue and pressing on the epiglottis. A number of smaller growths surrounded the base of the parent growth, evidently springing from the faucial tonsils. The main tumor, about the size of a walnut, had been scraped by a local physician, and this was followed by symptoms of infection. The surface of the tumor was irregular; the tumor bled easily and was dark in color. The microscopic examination disclosed a round-celled sarcoma.

For some months the patient had griping pains in the epigastrium following the ingestion of food, liquid or solid. Trypsin injections were given, beginning with a small dose. The patient did not improve until he passed from the rectum what appeared to be a cast of the bowel. Improvement, both local and constitutional, followed, and the man is now feeling entirely well. There has been no recurrence of the growth.

Dr. Geo. E. Shambaugh:—I reported a case of sarcoma of the base of the tongue several years ago in the *American Journal of the Medical Sciences*. These tumors are almost invariably small round-celled sarcoma. At that time, 1902, only nine cases in all had been reported, and all were of this type except one, which was a spindle-celled sarcoma. My case was a large spindle-celled sarcoma.

In regard to the apparent beneficial effects of trypsin: It must be remembered that these tumors occasionally reeover of their own account. Several of the nine cases reported had recovered. One recovered following the use of injections of pyoktannin. Trypsin, however, should certainly be tried in these cases, and I am not prepared to say that the results in Dr. Corwin's case were not due to that agent.

Dr. C. M. Robertson:—I do not believe that the trypsin did any good at all. It probably is one of those tumors that disappear for a while and then metastases manifest themselves in the liver or elsewhere. I think that in nearly all these cases there is a recurrence, even after thirty years, as was shown in a study of cases of sarcoma of the eye in the Moorfield Hospital.

Regular Meeting, held Feb. 11, 1908.

Regular meeting, held Feb. 11, 1908, with the President, Dr. A. H. Andrews, in the Chair. Dr. J. G. Wilson read a paper on "Some Points in the Anatomy of the Frontal Sinus." Dr. R. H. Good described

AN INTRANASAL METHOD FOR OPENING THE FRONTAL SINUS ESTABLISHING THE LARGEST POSSIBLE DRAINAGE.

R. H. GOOD, M.D., CHICAGO.

The principal points of advantage in my operation are:

First.—The establishment of the largest possible opening from the frontal sinus into the nasal cavity.

Second.—The practical impossibility of injuring the dura.

Third.—The removal of all the anterior ethmoidal cells to give better drainage; as well as to remove diseased cells, which may be associated with frontal sinusitis and to prevent an acute or a chronic ethmoiditis following a frontal sinus operation.

Fourth.—The possibility of curetting practically the entire sinus and subsequently making topical applications to the mucous membrane in the sinus if necessary.

The instruments used in this operation are two frontal sinus rasps, two tapering curved chisels, three protectors, and long flexible curettes.

The frontal sinus rasp is made on the same principle as the old-fashioned, coarse, horseshoe rasp, from which I derived the idea. It is slightly curved at the rasp end to fit into the frontal sinus, and the teeth are on the longitudinally concave surface, pointing toward the handle, so that when traction is made on the rasp the bone anterior to it is rasped away. The posterior surface of the rasp is perfectly smooth and flat. The chisels are short, curved and tapering. The handle at the chisel end is very slender so that the chisel may be manipulated under the direct vision of the eye. The corners are tapering as well as blunt, so that if the angle of the chisel should strike a bony surface it would tend to glide off instead of penetrating. The protectors are made of brass and in three different widths. They can be bent easily into shape on the flat, but not sideways.

The operation consists of the following steps:

1. The removal of the middle turbinate. This can be separated from its attachment to the ethmoidal labyrinth with a curved knife, such as I use in tonsil resections, or with Kyle's nasal saw, and then removed with forceps or snare.

2. The removal of the ethmoidal cells and the unciform process of the ethmoidal bone.

I have found Dr. Ballenger's ethmo-cribriform knife very valuable for separating the ethmoid cells from the cribriform plate. This instrument is introduced into the ethmoidal labyrinth just below the superior turbinate and drawn upward to the floor of the skull and then forward to the frontal sinus. The unciform process of the ethmoid is removed from its attachment above by first putting a probe into the sinus and then with the larger sized chisel the delicate structure can be separated above by simply making pressure on the chisel and at the same time giving it a slight rotary movement. The unciform plate and ethmoidal cells are now removed as thoroughly as possible with biting forceps, such as Hartman's, and then curetted out so that they are removed up to the floor of the skull.

3. Chisel off a little of the frontal process of the superior maxilla and separate the anterior medial wall of the ethmoidal labyrinth from its attachment to the frontal spine.

The anterior portion of the medial wall of the ethmoidal labyrinth at its attachment to the frontal spine, being impossible to bite out with forceps, can easily be removed with the small chisel. With the unciform plate out of the way, almost any diseased frontal sinus can be probed. One or two protectors are introduced into the sinus. The chisel is held in a direct line with the protector and under the direct vision of the eye. It is held at a tangent to the orbital wall of the sinus, so that it is impossible to injure the cribriform plate as the chisel is directed externally to this structure.

The lacrimal bone and lamina papyracea of the ethmoidal bone are protected by an assistant putting his finger into the orbit who can notify the surgeon if the chisel is touching these structures. As stated above, the chisel is held at a tangent to the orbital wall, and, being curved, with the corners dull, it would tend to lift the orbital periosteum instead of penetrating, as the case would be with a sharp-cornered straight chisel.

The internal table of the frontal bone is the important structure to guard against injury, and this is protected first by one or two protectors, past which the chisel can not go if held in a direct line with it. In the second place, there is a considerable distance between the frontal process of the superior maxilla and the

internal table of the frontal bone, so that the chisel, being firmly held by the hand, loses its momentum before reaching the internal table. In the third place, the corners of the chisel are blunt and tapering, so that if the corner of the chisel should strike the posterior wall it would tend to glide off instead of penetrating this structure. Again, I advise using a very small mallet and make light taps so that one has absolute control of the chisel.

4. Rasping away the lateral aspect of the frontal spine and thereby enlarging the space between the spine and the orbital wall of the sinus. The rasp is introduced into the sinus externally to the frontal spine (not back of the spine, which is impossible) and internally to the orbital wall. By rasping forward and toward the septum the space between these two structures is enlarged at the expense of the frontal spine. The rasp is perfectly smooth posteriorly so that the internal table can not be injured. Care must be taken not to withdraw the rasp too far while rasping, as it will injure the septum. The structures to be guarded are the lacrimal bone and the lamina papyracea of the ethmoid, which is easily done by the surgeon putting his finger into the orbit while rasping.

5. Curetting the sinus if granulation tissue, polypi or tumors are felt in it. The curette must be long and flexible so that all parts of the sinus, except those back of trabeculæ, can be reached. The sinus in ordinary cases is packed with gauze, which is removed the following day, after which the patient is left alone. No matter how large one makes the opening into the sinus, it has a tendency to close, especially in cases with profuse purulent discharge. In very chronic cases with profuse discharge and polypoid formation it is necessary to put in a tube to keep the ostium from closing with granulations. For this purpose I use a gold-plated tube made of coarse cloth wire, which is left in the sinuses for variable lengths of time, depending upon the amount of the discharge. The tube, being sieve-like, allows drainage into the walls of the tube, as well as through the end opening. The rough surface of the tube keeps it in place.

The operation can be performed under local anesthesia by rubbing adrenalin chlorid and crystals of cocain into the olfactory region and by injecting a small quantity of a 10 per cent. solution of cocain in adrenalin chlorid (1:1000) into the frontal sinus. It is, however, better to put the patient to sleep at the latter part of the operation when the frontal sinus rasp is being used. I operated my last two cases in this way and found it more satisfactory to the patient and myself. It is necessary to use a Kierstein head-light, as the ordinary concave mirrors can not focus the rays into remote cavities.

The reaction following this operation is very slight. Only in one case was there edema in the region of the inner canthus, and patients who have been suffering with headache or pain are instantaneously relieved, as illustrated by the following cases.

CASE 1.—Miss F., Chicago, American, aged 21, and engaged in office work. Eight months before consulting me patient sat up late on the porch and contracted a cold, which was followed two days later by acute frontal sinusitis. During these eight months the patient complained of headaches almost every day. The pain started shortly after rising in the morning and continued for periods varying from one to four hours. She had three acute attacks during this time, when her pain would be severe, and her left eyelid would swell so that she could hardly open the eye. During the last attack she was admitted into the Eye and Ear Hospital, where she was treated for iritis with atropin, according to her statement. After leaving the hospital she was asked to return in a few weeks to have her eyes straightened by a tenotomy. Being afraid of an operation on her eye, she consulted me Feb. 20, 1907.

On examination I found a drooping of the left upper eyelid, which varied in degree, according to the severity of the pains. There was a manifest convergent strabismus, but no paralysis of any of the muscles of the eye. With Maddox rod test it showed an esophoria of 14 per cent. and a right hyperphoria of 5 per cent., showing an impairment of function of the superior oblique and the external rectus of the left eye, or, in other words, an involvement of the third, fourth and sixth cranial nerves. (I failed to note in this case whether the pupil was dilated,

which occurred in two of my cases.) The sinus was very tender on pressure, the pain radiating to the left temple and occiput. Coughing and sneezing increased the pain in the sinus. On examination of the nose, the left nostril was practically obstructed by hypertrophy of both the inferior and middle turbinals, and the latter was so large that the septum was pushed to the opposite side. Some secretions were seen under the middle turbinate, which, however, did not appear purulent. Freer's transillumination lamp showed less illumination of the left than of the right sinus, and the x -rays showed a greater density of the left sinus. Spraying the nose with cocain and adrenalin relieved the patient for ten hours, but was of no help thereafter.

February 21 I removed the middle turbinate and passed a catheter into the frontal sinus to make sure that the ostium was patulous. The patient derived no relief from this operation, and I allowed her to go for a month or more, thinking that it might get well. April 4 I took her to the hospital and performed my frontal sinus operation under local anesthesia. Immediately after the operation the patient was relieved of pain, which has not recurred to the present time. Two months after the operation there appeared a polyp in the frontal sinus opening, which I removed and cauterized the base with stick silver nitrate. The ptosis disappeared one day after the operation, and there is only two degrees of esophoria, instead of 14, and no hyperphoria. I kept the patient at the hospital four days, as I wanted an accurate record and the patient kept under careful observation. During these four days the temperature was normal, except at 4 p. m. for the first three, when it went up to 99. The highest pulse rate was 80. There was possibly the slightest amount of swelling around the inner canthus of the left eye the day following the operation, but it was hardly noticeable, and the patient was free from pain.

CASE 2.—Mrs. McC., Chicago, aged 43, complained of severe pain in the region of the right frontal sinus for the past six weeks. She consulted a specialist regarding her eyes, who sent her to a neurologist. She received treatments from the latter for about six weeks, but gradually became worse until finally she was confined to bed and called in Dr. C. C. Rogers, who made a probable diagnosis of frontal sinusitis. Having known about my intranasal operation, the Doctor referred the case to me in preference to operating himself by the external method.

On examination I found a marked ptosis of right upper lid, paresis of the superior, inferior and internal recti muscles, the pupil was somewhat dilated and sluggish in reaction to light. Pressure over the right sinus caused severe, deep-seated pain, which radiated to the parietal region. The patient had a diplopia and with the Maddox rod showed an exophoria of 16 degrees, but there was no hyperphoria. Examination of the nose showed a deflection of the upper part of the septum to the right, so that the middle turbinate was pressed upon. The turbinate was about normal in size and there was no discharge seen under the middle turbinate. With a probe in the sinus a grating could be felt as though there were bare bone in the sinus. The x -ray showed greater density of the right sinus.

On April 24, 1907, the patient was admitted to the hospital and operated on the following day. Immediately after the operation the pain left her and she enjoyed a good night's rest for the first time in six weeks. The ptosis disappeared at the same time. The patient had a normal temperature all the time she was in the hospital, except for the first four days, when it raised to 99.4 at 8 p. m. on the first day and 99 at 4 p. m. on the three following days. After two weeks the patient had lost her diplopia, even with the red disc test and she had an exophoria of 2 degrees instead of 16 degrees. Her pupil remained slightly dilated, but the superior inferior and internal recti muscles resumed their action. Four weeks after the operation the patient was taken with pain, which she described as being deep-seated between the eyes, and there was a slight edema above and below the inner canthus of the right eye and a tenderness on pressure over the ethmoidal cells. She had a temperature of 100. I removed some of the anterior ethmoidal cells, and the temperature dropped to normal and the pain stopped and the patient was well again. I consider that this was an acute ethmoiditis, so that I now remove the anterior ethmoidal cells at the time of the frontal sinus operation.

CASE 3.—Miss M., aged 29, was referred to me by Dr. Atkinson Sept. 27, 1907. The patient complained of severe left-sided frontal headaches for the past year, especially in the morning, and gradually growing worse. She complained of an increased nasal discharge which, she thought, was about the same in quantity from either side. Two months before the patient had an edema of the left eyelid and excessive pain. The pain radiated to the occiput and was markedly increased on pressure over the left frontal sinus. The left pupil was dilated and reacted sluggishly, which the patient said had been the case since her trouble in July. On taking cold her headaches were more severe. The temperature was $99\frac{1}{2}$ at the time of the first examination. The left sinus, on transillumination, showed a shadow, and the x-ray showed a greater density. There was no drooping of upper lid and no involvement of the extrinsic muscles of the eye. On examination of the nasal cavity I found an enlarged middle turbinate on the left side and underneath it a small polyp. I could not detect any secretions under the middle turbinate at this time.

On operating I found at least ten polypi filling the various ethmoidal cells, which I removed thoroughly at the same time I performed the frontal sinus operation. Four weeks after operation the pupil was almost normal in size and its reaction to light practically normal. I have difficulty in this case to keep the sinus open, and the canal fills up with granulation tissue, and I may insert one of my gold-plated wire tubes to keep the passage permanently open. The patient remained in the hospital one week and had a normal temperature every day, except the first, when it was up to 99.2 . There was no edema of the eyes.

CASE 4.—Miss R., River Forest, Ill., aged 36, American, came to my office Jan. 1, 1908. Three years ago the patient had an acute rhinitis, which was followed a few days later by severe pain and headache over her left eye. In five days these pains subsided, but there was an increased discharge from the left nostril, and for six months the patient says she had a bronchitis, which, I think, was due to the pus causing a continued irritation in the pharynx. She has had a constant discharge during these years and occasionally a dull pain and headache over the left eye. On Dec. 31, 1907, she developed an acute frontal sinusitis, with the following symptoms: One week previous the patient was again taken with an acute coryza and the nasal passages were obstructed considerably. She complained of severe pain over the left sinus, which radiated to the occiput. She also complained of deep-seated pain back of the left eye. There was marked tenderness on pressure over the left sinus. When blowing her nose the pain was felt mostly in the occiput, while coughing or sneezing increased the pain in the sinus. There was a slight drooping of the left upper lid, which varied according to the severity of the pain. The muscles of the eyes were normal and the pupil was not dilated.

On examination of the left nose the middle meatus was filled with a creamy, yellow pus, which, when washed out, could be seen coming from underneath the middle turbinate. The latter was considerably enlarged and from below it there projected a polyp which seemed to grow from the infundibulum.

The nose was sprayed with adrenalin and cocaine, and the patient was asked to spray the nose three times a day with adrenalin chlorid. The first treatment gave relief for eight hours and subsequent treatments failed. Freer's transillumination lamp showed a shadow over the left sinus, and the x-ray plate was a little lighter over the left sinus than the right.

On Jan. 3, 1908, I removed the middle turbinate, polyp and the anterior ethmoidal cells and passed a heavy probe into the sinus. This operation did not give any relief whatever, and on January 10 I performed my sinus operation. She slept well the same night and has not had any pain since. She remained in the hospital four days. Her record shows a temperature of 99 on the second day and normal the two following. There was no edema of the eyelids following the operation.

DISCUSSION.

Dr. Joseph C. Beck:—I had an accident during an intranasal operation done according to Halle's method. The result was a local meningitis. Halle's, Ingals' and Good's methods seem to offer practically the same chance for danger. I find

that the greatest difficulty with these operations is the getting into the frontal sinus. Dr. Good says that the whole sinus may be drained by this method, and the others make the same claim. I have a radiograph of one case which shows that that is impossible, because the sinus was bisected by a bony septa. I can not see how any of these methods would drain that sinus. Of course, an intranasal operation is preferable to the external operation, and it seems to me that Dr. Good's method is a valuable one, especially the use of the rasp. I will give the method a trial for that reason.

Dr. Wilson's means for measuring the cribriform plate of the ethmoid will be of very great value to us. I have been trying to do the same thing by means of skiagraphs, but the method is more difficult and not as accurate as Dr. Wilson's.

Dr. A. M. Corwin:—The demonstration of Dr. Good's method was very nice, indeed, but fill in these cavities with mucous membrane and pass into it an instrument of the size of this rasp, and at this angle, and I fear that it will inflict considerable damage all along the tract. We would be sure to injure all the structures and cause the formation of adhesions, militating against the possibility of perfect drainage. To pass this rasp well up into the frontal sinus it seems as though we would have to go into the mouth and through the palate, judging from the skull which is being used as a model.

Dr. W. L. Ballenger:—I am glad that statistics do sometimes agree. Logan Turner says that about half of the fronto-nasal ducts drain into the infundibulum and the remainder into the middle meatus. I had just the same experience that Dr. Wilson referred to, namely, that the names for these various structures are confused in the literature, and I, therefore, use the B. N. A.

As to accidents, I think that those who do the external operations can report just as many accidents as can those who do the intranasal operations; perhaps, the percentage of the former is even greater, especially when the radical operation is done. So that it can be maintained that the intranasal operations are more dangerous than the external operations. I believe that they are much safer.

Now the question arises as to whether Dr. Good's method is feasible and practical. The rasps look as though if once you got them into the sinus there would be no occasion to operate, although that is not necessarily true. I am impressed with the method as described by the Doctor, and I am not sure that it is not a good operation. I will try it.

I am not so much afraid of the dangers pointed out by Dr. Wilson, although they are to be considered. If I cracked the frontal plate, I would not expect the patient to die of meningitis because the dura is exposed. We see that in mastoid operations over and over again, and in more than one external operation without any danger. So that if Dr. Good should fracture this plate with his rasp I would not expect the patient to die of meningitis, although he might. But that is also true of the external operation.

I had an external Killian operation a few days ago in which a portion of the cranial plate came away. It was fractured, and I do not know how. The dura was exposed over an area as large as my thumb nail and there was no trouble. So that these accidents do not necessarily produce harm, but they should be avoided.

As to hemorrhage, you may have it from the anterior ethmoidal artery, no matter how simple the operation. So that I am still open to conviction as to the proper route for operating on the frontal sinus.

In reference to the plate Dr. Beck showed, that is not an argument against the intranasal operation. True, by external operations you can break down these cells and get better drainage, but drainage is not the only thing to be sought for in these operations, although it is of prime importance. Ventilation is also of great importance. I have found that if you ventilate a cavity, the infection will usually cease, even if the drainage is not perfect.

Dr. George E. Shambaugh:—For the relief of most of these frontal sinus cases intranasal work is all that is required. Even in the majority of the chronic cases the radical external operation is to be done only when we do not get satisfactory relief from the severe symptoms by an intranasal operation. I am especially

pleased with the elaborate details Dr. Good worked out, but there is one point that must not be lost sight of, and that is confusing the idea of a radical operation with that of best results. The most radical operation will often not give as satisfactory result as the more conservative procedure. This is especially true in the frontal sinus cases, when the choice is to be made between an external operation and an intranasal one. And in the intranasal operation for the drainage of the frontal sinus the most radical tearing up of these parts does not necessarily assure result better or even as good in the majority of cases as more careful, conservative procedure.

My work usually consists of using forceps to remove the turbinate body and to get out the anterior ethmoid cells, and I usually get satisfactory drainage in that way. One can take out the entire ethmoid labyrinth with these forceps. The one instrument shown by Dr. Good that appeals to me the most is the rasp to be used to enlarge the frontal sinus opening. But the question arises whether it is necessary to use this rasp if the opening present is sufficiently large to admit the rasp. It is only when the opening is obstructed that symptoms are likely to be annoying, so that if you can pass in the rasp there is usually no obstruction, hence no symptoms. I should be inclined to try it, however, where the usual intranasal operation did not give results.

In regard to the operation for removing the floor of the frontal sinus with chisels, this can do doubt be successfully accomplished in cases where the posterior wall of the frontal sinus is separated by a considerable distance from the anterior wall. But there are other cases where a study of the relations in a cadaver shows that such an operation is practically impossible without breaking through the cribriform plate. I will pass around an anatomical preparation where this is the situation. Here the cribriform plate extends fully half an inch anterior to the opening of the nasofrontal duct. In this case, even if it were possible to work with the protectors which have been shown this evening, which I hardly think could be used in such a case, I do not see how a chiseling operation can be done without great probability of injury to the cribriform plate. The narrow chamber in which this work must be done prevents the placing of a chisel at such an angle as to obviate in any way, it seems to me, this danger. In this specimen, for example, the opening of the nasofrontal duct is scarcely one-quarter of an inch from the cribriform plate. I can hardly conceive the possibility of using a chisel even on the cadaver where the view is not obscured by swollen and bleeding tissues without the possibility of fracturing the cribriform plate.

As to the danger of exposing the dura in such operations we have learned from our work upon the mastoid that the mere exposure of the dura, provided this is not injured, is not fraught with any degree of danger. In the case of the frontal sinus, for example, the exposed dura on the posterior wall of the frontal sinus need not necessarily greatly increase the danger of the operation. An injury to the cribriform plate, however, is quite a different matter. This plate is perforated by numerous nerve filaments and lymphatics, which brings the dura into close relation with the intranasal cavity. A mere fracture of the cribriform without so much as a perforating wound must result in considerable laceration of these prolongations, and opens the way to a most ready infection in this part.

As far as I have been able to judge of the several intranasal methods of enlarging the opening of the frontal sinus into the nose, it seems to me that the method which has been devised by Dr. Ingals, that of passing a burr over a pilot, presents by far the safest method that has yet been suggested.

Dr. J. Holinger:—The intranasal treatment for chronic suppuration of the frontal sinus will never entirely take the place of Killian's external operation, although the latter is indicated in only a few cases. The opening and drainage of the different sinuses is not the only indication for our therapeutical endeavors. The mucous membrane is usually affected in such a manner as to continue to make trouble even though drainage is perfect, as the following case will demonstrate: A surgeon of this city opened up all the sinuses in a case which took him three months to accomplish, but never thought of washing them out. The patient was not relieved. I washed out the sinuses with boric acid solution and every

symptom disappeared at once. The sinuses were filled with decomposed pus and mucus, and a very few washings were sufficient to ease the most distressing symptom.

Another point: The bones in the upper part of the nose in these old chronic cases are not normal, but are extremely brittle. Any instrument in the duct may easily injure the bony septa. One may even break through any cavity and into the skull with an irrigation tube or a probe without using any force at all. Therefore, one must be very careful in these cases. It has happened twice to me to have a patient collapse during the washing of the sinus. In one case I saw at a subsequent operation that the inner plate was necrotic, and that the fluid had probably forced its way into the extradural space.

As to the experiments of opening the sinus from the nose it must be said that the skulls which have been shown here are normal and the arrangement of the sinuses is normal. The most stubborn cases, however, are those where the arrangement of the sinuses is abnormal. In order to illustrate this point allow me to remind you of the young woman I showed here a year ago. She had to be operated upon her left frontal sinus. The right sinus extended over both sides and the left one was only a small slit containing ill-smelling pus, in the depth of the orbit, where no intranasal treatment could reach it. All these cavities are lined with mucous membrane, which is at the same time the periosteum. You rasp this away and lay bare the bone. What happens? Granulations will form which will produce pus and necrosis, thus causing the very condition you wish to overcome. I am very careful in using the eurette in any of these cavities. It is a different matter to break away some parts with a forceps than to enter a bleeding cavity with a eurette or rasp. I would hesitate to do so. It is very easy to injure or scrape away this thin mucous membrane, but what are you going to put in place of it?

Dr. R. H. Good:—Dr. Corwin wondered whether the rasp enters the frontal sinus. I think he will find that it does. Dr. Ballenger is right in criticising the instrument, because the rasp I showed is not a very good one. Better ones are now being made. In regard to the dura, exposing it is not dangerous, but if you perforate it meningitis will follow nearly every time, unless you get a large opening and get good drainage. I saw a case in Vienna where there was an opening as large as a dime into the dura. The patient developed meningitis and died. Keep away from the internal plate of the frontal sinus. My method does not touch that plate at all. I do not do a radical operation until after I have tried all other methods and failed.

The eribriform plate is not in the field of my operation. The chisel is external to its passing at a tangent to the orbital wall. The only thing you can damage is the lamina papyracea or the lacrimal bone, and that can be protected by the assistant. I am sure that in each of my four cases Killian would have done his radical operation. All the operations I saw Killian do in his clinic were at least secondary, failures every one of them.

Dr. L. Ostrom exhibited an antrum forceps, and Dr. F. E. Brawley exhibited an irrigation apparatus for the nasal accessory sinuses.

Adjourned.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Regular Meeting, Dec. 9, 1907.

Dr. C. G. Darling presented a patient whose eye had been inflamed for a week and a half and previous to that vision had been blurred for a year or more. There was no itching and symptoms were no worse in the summer than in the winter. There was a slight discharge and the lids stuck together in the morning, but these symptoms are now absent. Two smears were made but no eosinophiles were found. A smear made from a small ulcer on the conjunctiva was negative. A tuberculin test was not made. The mucous membrane was normal microscopically.

TRAUMATIC IRIDEREMIA.

Dr. Thomas Faith reported three cases, which demonstrated that the diagnosis can not usually be made at once, because of the blood in the anterior part of the eye, and that there is usually quite pronounced hemorrhage into the interior of the eye. The increase of intraocular tension which is very likely to appear in a few days after the accident may be explained by the coming in contact with the cornea of the remnants of the root of the iris, thus shutting off drainage through the sinus angle. It is not improbable, however, that the hemorrhage is a factor in the production of the tension. Eserin is indicated and has a favorable influence on the tension in some cases. Atropin is positively contraindicated.

DISCUSSION.

Dr. H. B. Young said that the result following the use of atropin in Dr. Faith's cases bears out the usual findings.

Dr. W. A. Mann referred to a case he presented to the society several years ago, which resembled Dr. Faith's cases, but proved to be retroflexion of the iris following trauma. He could not follow the case long enough to determine whether the iris came back into place. The tension was high.

Dr. Casey A. Wood said that there is a class of cases of irideremia, of which he had seen two specimens, that is, entire evulsion of the iris following an attempt to do an iridectomy. The iris was torn away from its attachment. In one case, a case of atactic glaucoma, removal of the iris entirely cured the glaucoma, and if there is anything in the theory, he said, that glaucoma is caused by the iris forcing itself against the sclero-iridic angle, this case was an illustration of it. The effect of eserin in such cases he thought emphasizes the fact that eserin does not always act in glaucoma, by pulling the mass of iris away from the angle, as there was no iris to drag away from the angle.

Dr. Faith stated that he had hoped some one would explain the action of eserin in these cases. In two of his cases it immediately reduced the tension. Another point of interest in these cases was the pronounced excavation of the optic nerve, that is, in two cases, while in the third, in which the tension was as great as in the other two cases, there was no excavation at all. He interpreted this to mean that the amount of excavation depends entirely on the kind of optic disc present originally.

TUMOR OF CHORIOID.

Dr. Charles P. Small reported the case of a woman who received a blow on the eye. Severe pain followed, lasting for three days, but the appearance of the eye was unchanged. One week later the pain returned and became very severe. A foreign body in the globe was suspected, but the skiagraph was negative. The pain ceased almost suddenly after the use of dionin, and never returned to give her much annoyance. Tension was lowered. The lids were swollen and there was a discolored spot on the conjunctiva. Vision was destroyed. The eye was enucleated and a microscopic examination of the tumor showed it to be a metastatic hypernephroma.

DISCUSSION.

Dr. Casey A. Wood thought that apart from the unusual pigmentation present in the tumor it suggested that it might be a necrotic area, a cholesterol deposit which had broken down. He had never seen anything resembling in appearance the sections of this tumor, and believed it to be another example of undiagnosed intraocular tumor. He agreed with Dr. Pusey that all useless, blind and painful eyes should be removed, and referred to Dr. Small's case as supporting this statement. There are, he said, many cases of intraocular tumor that are impossible of diagnosis and a large per cent. in which diagnosis is very difficult.

Dr. Carlton, who made the microscopic examination of the tumor, stated that hypernephroma is a rather rare tumor. It may or may not be malignant. It is adrenal in structure and is believed to originate from an embryonic remnant either

in the kidney or occasionally attached to the kidney, either within or without the capsule. The secondary tumors are peculiar in that they are discovered accidentally. In one case reported there was a metastatic tumor in the humerus which caused a fracture of that bone when the individual lifted a stove lid. The arm was removed and no recurrence took place. In another case the secondary tumor was removed; there was a recurrence and then none for two years. In Dr. Small's case it was impossible to diagnosticate the presence of a primary tumor, but the intraocular tumor did not resemble any other variety of tumor and contained cells identical with those seen in hypernephroma, that is, endothelial in character, and, further, inasmuch as there is not normally endothelium in the eye, it was safe to assume that the tumor was a metastatic hypernephroma. Some of the cells in the tumor are pigmented, but the cells of the cortex of the adrenal are normally pigmented. The pigmentation might also be due to the fact that the tumor was situated in the pigmented organ, and by pressure atrophy melanotic granules were scattered in the stroma of the tumor, and were taken up by the cells. If the tumor is not a metastatic hypernephroma, Dr. Carlton thought that in all probability it would have to be called an endothelioma, taking its origin from some of the vessels in the chorioid.

Dr. Small called attention to another interesting feature, namely, that Bowman's membrane was intact, so that a foreign body could not have penetrated the cornea.

EXHIBITION OF SPECIMENS.

An exhibition of specimens was made by Dr. Henry Gradle, as follows:

1. Complete enucleation of an eye, with the unexpected recovery of a foreign body in it. The patient, a young woman, 29 years old, was injured by a nail when 10 years old. The eye was sore for a few weeks, and then had no further trouble except that she was blind in that eye. During June, 1907, there was pain for the first time and an inflammatory reaction. There was no doubt about the eye being blind; the lens was cataractous, and there was tenderness indicative of cyclitis. It was impossible to quiet the eye until after the use of sodium salicylate, atropin and dionin having failed. A slight ptosis persisted. Last fall the inflammatory reaction recurred again, and when the conditions would not subside the eye was enucleated. A bit of nail was found firmly embedded in the optic nerve-head. It was not fully exposed, but the magnet demonstrated its presence. The iris is completely adherent to the lens; the lens is cataractous and the chorioid is entirely bleached. There is a hole in the iris through which the foreign body evidently entered. The interesting point is that the eye tolerated the foreign body for nineteen years.

2. A child, apparently in good health, suffered from inflammation of one eye during the eighth month, without known cause. That eye never became quiet. In the course of a year it shrunk until now it is a perfectly quiet atrophic stump with opaque cornea, without tenderness. The other eye became involved soon afterward. Dr. Gradle saw the child first in April, 1907, when it was 28 months old. In the second eye there was a typical high-grade iridocyclitis, beginning to subside. The iris was tied down, there was moderate irritation, with no evidence of perception. There was no reason to suspect anything except iridocyclitis, possibly tubercular in origin. The eye was normal in size. Atropin was prescribed. During the summer the eye had enlarged, and had given the child discomfort. A raw, granulating, bleeding surface protruded from the lens, evidently causing the child much distress. The eye was enucleated. The tumor, which was present, had destroyed the greater part of the cornea, therefore the enucleation was made complete. The wound healed well and there was no reaction. On cutting through the tumor it was found that there was nothing left of the eye except the sclera and the periphery of the cornea. The rest of the contents of the eye had been changed into a mass which in the rear of the eyeball looked like a glioma, but in the front was a fungus-like, granulating, bleeding tissue, permeated by hemorrhages, and

between the yellowish white gliomatous masses and the fungous masses there was a large caseated spot. The microscope showed a glioma with hemorrhage into the anterior part of the tumor.

3. Young man, with high degree of hyperopia and convergent strabismus, which was corrected by the use of glasses. The greater hyperopic eye showed vision of about $1/5$; in 1900 the boy was injured by a brick. The glass of his spectacles cut his eye, causing a small wound at the junction of the cornea and sclera. The iris seemed to protrude subconjunctivally. He attempted after forty-eight hours to snip it off, but the forceps grasped nothing. The wound healed kindly and there was no trouble until this summer, when the eye began to pain and it was tender to touch. In October he found a cyst of the iris. The iris had prolapsed into the wound at the time, but did not protrude. There was simply adherence of the iris to the edge of the wound, and the lower nasal edge of this incomplete coloboma had become changed into a cyst. Atropin gave relief for the time being, but an iridectomy had to be done. It proved to be very difficult, but was finally excised. Evidently the cyst had adhered to the cornea, because after the wound had healed there was at the lower part of the cornea, where the cyst had been, a slight vascularity and grayness. Healing was uneventful, and sight was as good as before. The eye was perfectly quiet. A few years ago Dr. Gradle operated on a similar case with similar fortunate results. It was also a traumatic case, with entrance of the iris into the wound. The cyst in that case was of the size of a small pea, and was pressed against the cornea, causing cloudiness and reducing sight to $1/10$. Iridectomy in that case was done easily, and a month afterward sight was nearly $20/30$. The cyst was cut out in a single mass.

USE OF ATROPIN IN SYMPATHETIC OPHTHALMIA.

Dr. H. B. Young, Burlington, Iowa, reported a case of a man with one eye enucleated and the second eye involved. The origin of the trouble was a gonorrhoeal ophthalmia. The one eye showed much swelling of the cornea, and in the other there was a small perforation, with a large corneal staphyloma. A puncture was suggested, but refused. The attending physician did puncture it eventually, and now tension is plus and the incarcerated portion of iris is protruding quite markedly. This is the ninth week of treatment. A 2 per cent. atropin solution is being used; the patient has been thoroughly mercurialized, but the increase in tension is becoming more marked. The question is, How much has the atropin to do with it? How much is due to the atropin when the iris is tied up in the corneal cicatrix? Will it make more trouble to use atropin than to omit it? The pupillary space is filled up. Has the atropin aggravated the increase in tension? There is very little pain. Is a paracentesis advisable with sclerotomy? Is there any hope of saving some vision in the affected eye?

DISCUSSION.

Dr. Gradle said that in his case the iris was adherent. He recalled two other cases of blind eyes, with cataractous lens, adherent iris, and recurrent attacks of iritis. Unmistakable benefit resulted from the use of atropin. He suggested that there probably was a little leakage between the anterior and posterior chambers. In one of the cases the stoppage of the atropin was followed by a ciliary injection, discomfort, and on its resumption the symptoms diminished in severity. In one case of severe iritis the tension was distinctly plus, but Dr. Gradle did not stop the use of the atropin, and the case terminated in recovery.

Dr. Casey A. Wood did not believe that it would make much difference whether atropin was used or not, because of the changes that had taken place in the interior of the eye. He did not believe that in every instance the exact *modus curendi* of atropin could be determined any more than in the case of eserin. He did not believe that atropin always causes the tension to rise, nor that eserin is always indicated in plus tension, because conditions vary. The local sedative effect of atropin can not be questioned, and for that reason he thought that Dr. Young ought to continue the use of atropin.

Dr. George F. Suker referred to two cases in which he used powdered dionin without getting any reaction. It had not been used before in either case. He also used it in solution, with the same result.

MORTIMER FRANK, Secretary.

CHICAGO SURGICAL SOCIETY.

A regular meeting was held Feb. 7, 1908, with the president, Dr. A. J. Ochsner, in the chair.

ROTATION OF GREAT OMENTUM.

Dr. William Fuller reported a case of intra-abdominal rotation of the great omentum unassociated with hernia.

DISCUSSION.

Dr. D. A. K. Steele said that some eight years ago he had a case of twisted great omentum in which he made an error in diagnosis similar to the one cited by Dr. Fuller. The patient was a rather fat, middle-aged policeman, who was admitted to the Mercy Hospital, having been sent there by him for an operation for a supposed recurrent appendicitis. At the operation he found that the abdomen contained a good deal of bloody fluid. The omentum was enormously enlarged. It was twisted and convoluted, and it was adherent on the right side, and the veins particularly were greatly dilated. The whole omentum had a bluish appearance, was greatly hypertrophied and seemed very much like bunches of grapes, or it had an hydatidiform appearance. He resected the omentum, mopped out the abdomen, closed it up, and in two or three days the patient died. That was the only case he has seen, and in that case he believes the twisted omentum was due to an old hernia on the right side to which the attachment had been made. The appendix was somewhat pathologic, but the real pathology was in the twisted omentum in this case.

Dr. John L. Yates, of Milwaukee, Wis., said a case occurred at the Augustana Hospital about two years ago, the details of which are: The patient on admission gave a typical history of subacute cholecystitis, indicating the probable existence of stones. There was an elongated mass extending downward to the right side of the costal margin which on palpation and percussion simulated a Riedel's lobe, due to a distended gall bladder. At the operation by Dr. A. J. Ochsner the liver was found to be entirely normal, also the gall bladder. There was no attachment distal to this mass, and the mass itself did not show any distinct indication at that time of torsion. It was very edematous and showed apparently on microscopic examination evidences of what might be called omeritis, acute and subacute. There was no evidence of extension of this inflammation from the abdominal viscera to the omentum, so the probable explanation of this lesion was that torsion had taken place for some unknown cause, giving rise to recurrent edema. The torsion itself had disappeared, but the edema had persisted, and the resulting inflammation provoked an exudate which, in turn, caused crimping up of the omentum, forming a solid, hard mass in which there was no sign of suppuration and which was negative on microscopic examination as to bacteria. The patient made an uneventful recovery.

Dr. Alexander Hugh Ferguson reported a case of torsion of the great omentum. The patient was a woman, 42 years of age, the mother of six children, and weighed over 235 pounds. She was nearly six feet in height. The history she presented was that of a chronic condition referable to the stomach and bowels, and had been treated by a number of specialists and internists for stomach trouble and chronic diarrhea. The chronic diarrhea would last sometimes as long as a couple of months and then subside. She would be constipated for a short time, improve for two or three weeks, and then the diarrhea would come on again. Symptoms of partial obstruction of the bowels came on gradually, but there was no stercoraceous vomiting at any time. There was never any persistent vomiting. In fact, vomiting was a minor element in the case. Nausea was rather a constant symptom. The pelvic organs were normal. There was no pain, particularly in the region of the appendix. There was no intra-abdominal tension except at

times, and during these times she would have considerable pain. Exacerbations of pain came on rather severely and lasted for two or three days. There was more or less pain or uneasiness in the abdominal cavity all the time, particularly for the last year. The patient had indicanuria; indican was in the urine constantly. He could find no tumor. The blood was normal. The abdomen was so thick and the woman was so stout and fleshy that he could palpate nothing but a fat abdominal wall. There was no hernia to be seen or felt. She had no attacks of inflammation in the abdomen. He opened the abdomen as an exploratory incision, having told her that the diagnosis lay between torsion of the omentum and some obscure form of internal hernia. Upon opening the abdomen in the median line, the first thing that presented itself was the blue small intestine. No omentum was to be seen or felt over the anterior surface of the abdominal contents. Upon passing his hand into the pelvis, he felt the omentum behind the bowels. He followed it up in the direction of the appendix; it was not adherent to anything, but he found that it had pulled itself up over the junction of the small and large bowel. It was evident that the omentum had passed completely around via the junction of the duodenum and jejunum and formed a large rope-like mass behind the small bowel. All he had to do was to untwist it and unfold it over to its normal position and there leave it. The woman has been cured of her stomach trouble and of her gastrointestinal disturbances. This case disproves the assertion made in medical literature and also the statement made by Dr. Fuller, that, in order to have rotation of the omentum, the other end must be fixed at some point.

Dr. Fuller, in closing the discussion, said that the case related by Dr. Ferguson, in which there were no adhesions disclosed by the operation, does not prove that in the beginning of the torsion there were no adhesions, for these may in any case be twisted off when the omentum has made a certain number of revolutions. He thinks Dr. Ferguson's case belongs to the class in which the position of the omentum is merely an anomalous one as described by Dickinson and by Eccles.

HEMATURIA.*

CHARLES J. DRUECK, M.D., CHICAGO.

Hematuria, or the presence of blood corpuscles in the urine, is always pathological and appears in a number of different conditions. In fact, the blood may come from any part of the urinary tract, and, while the determination of its source is sometimes easy, at other times it is difficult, if not impossible. Frequently the physician is pinned down by the patient or his friends for a definite diagnosis, and where this differs from what has been previously offered by some other medical man it disturbs the confidence of the patient. As an example of this I shall cite a case later of a child who had had hematuria for about a year and which had been said to be due to kidney disease. When I diagnosed cancer of the kidney, the family were very skeptical, and it was only after the mother had felt the tumor that she believed in my judgment.

The character of the blood in the urine and its time of appearance, that is, whether clotted or diffused, profuse or scant, and its relation to the act of urination, differs and indicates somewhat the part of the urinary tract involved. The chemical reaction of the urine also affects the color, as acid urine is dark-red, while alkaline urine containing the same amount of blood will be bright in color. Of course, if the blood is small in amount, it may not materially influence the color of the urine. The albumin test will, however, show even very small traces of blood.

Guyon (White and Martin) divides the causes of hematuria into trauma, congestion, inflammation, organic disease and foreign bodies, and sometimes the pathology seems hardly sufficient to create the disturbance in the case at hand. The amount of blood in the urine is variable. If slight it may not show macroscopically, but if profuse the urine appears bloody. The microscope is always

* Read at the Southern District Society, June 18, 1905.

necessary to verify the clinical picture. If the urine contains pus as well as blood, the blood will be found in the sediment, leaving the liquid part of the urine uncolored.

The more dilute the urine is the less rapidly will the blood clot, but the more rapidly will it dissolve and diffuse. Blood clots in the urine have little diagnostic significance, except the long, thin, cylindrical. These resemble earth worms in appearance and are formed in the ureter. They indicate the source of blood as being in or above the ureter. Short cylindrical clots have no significance. The color of the clots varies from yellowish red to thick heavy dark red. The fibrin clots closely resemble broken pieces of cancer tissue.

I wish here to enumerate a few conditions in which hematuria occurs, and, for the sake of clearness, we will divide these sources of hemorrhage into (1) kidney (including the ureter), (2) bladder, (3) urethra. We will enumerate the causes of hematuria in each division and see what differential picture we can draw.

KIDNEY.

It has been said that renal hemorrhage is more protracted than the bleeding from the bladder or urethra, but that is very uncertain. In all diseases of the urinary tract the periods of bleeding are more frequent and intense as the diseases advance.

(a) Chronic diffuse inflammation of the kidney has no hemorrhage.

(b) In the following the hemorrhage is slight and subsides as the other symptoms are relieved: Acute parenchymatous nephritis. (This is frequently the result of accompaniment of acute infectious diseases, as variola or scarlet fever); amyloid degeneration, abscess, embolism, hydatids and purpura hemorrhagica and phlebitis (uterine or crural).

(c) In the following conditions the hemorrhage is profuse and obstinate: Cystic disease of the kidney, chronic interstitial nephritis (here the hemorrhage frequently alternates with hemorrhage from mucous membranes), malignant disease (hemorrhage is here brought on by slight or no cause, is made worse by exercise, but is not much relieved by rest). Guyon (White and Martin) says that the hemorrhage of kidney tumor is intermittent, it will stop and then suddenly reappear, and these changes occur often. Sometimes the ureter is blocked with a clot and the urine is clear for a few hours, and then the clot is suddenly released and the hematuria appears. The presence of renal casts shows positively that the blood is from the kidney. Tuberculosis of the kidney shows an intermittent hematuria which is brought on by exertion, but the urine contains pus and debris, which remain in solution and do not tend to settle out. Pain is also present, but is variable, sometimes amounting to a true renal colic. The hematuria of renal calculus is excited by the most trivial muscular strain or violence, such as under normal conditions would not cause any disturbance. The bleeding is promptly relieved by rest in bed. There is always more or less pain and renal colic which is reflected from the lumbar region in various directions. The pain of renal colic is quickly relieved by rest in bed, but not the pain of tuberculosis or tumor.

(d) Drugs may also cause hematuria, as turpentine, carbolic acid, cantharides and mercury. It must also be remembered that senna and rhubarb cause the same reddish-brown color of urine without causing hemorrhage.

(e) Trauma.—In severe injuries and malignant disease the blood may be bright red and the hematuria may appear to be terminal. In trauma the location and character of the injury will determine somewhat the source of the blood, i. e., a kick in the back followed by hematuria would suggest a contused or lacerated kidney, while a blow on the abdomen and particularly in the hypogastric region would indicate a ruptured bladder.

A heavy dragging sensation due to the renal congestion sometimes precedes hemorrhage from these parts or an attack of renal colic may appear. These pains do not occur with hemorrhage from the bladder or urethra.

BLADDER.

Associated with bladder lesions that cause hemorrhage we usually find cystitis and alkaline urine. In these conditions the muco-pus and phosphates so cloud the urine as to alter its appearance and prevent the easy detection of blood. When the urine is ammoniacal the hemoglobin is frequently dissolved out of the corpuscles and the cells are then called blood shadows. These are sometimes confusing when found in the urine. They appear as small bodies or rings the size of red cells and have no nucleus.

(a) The hematuria of vesical calculus is terminal and the blood is fresh. The hemorrhage is moderate, unless prostatic disease complicates. (b) Prostatocystitis and (c) vesical tuberculosis also have slight terminal hematuria, and in this symptom closely resemble stone. (d) Polypi of the bladder and (e) fibrous tumors usually show slight or moderate hemorrhage, but (f) villous growths bleed profusely and the blood forms a reddish-brown sediment. A vesical tumor, so long as it is not near the bladder neck, may not show any other symptoms except hemorrhage and is not palpable in its early stage, and thus the hemorrhage is frequently considered renal. Of course, if renal colic or some other localizing symptoms appears, that will determine the course of the bleeding. (g) Varicose veins of the neck of the bladder sometimes rupture and cause quite a sharp, free hemorrhage.

A cystoscopic examination must be made in all doubtful cases of hematuria. When the hemorrhage comes from the bladder we have, besides the visible blood, frequent micturition and pain in the inflammatory, obstructive or traumatic cases. A bimanual examination will frequently detect changes in the bladder wall or prostate or the presence of a tumor. Vesical tumors ultimately necessitate catheterization, and then cystitis is soon added to the clinical picture. When the blood is diffused throughout all of the urine and the last urine contains a large quantity of pure bright blood, it is probably vesical or prostate bleeding.

URETHRA.

Hemorrhage from the urethra usually precedes the flow of urine and also occurs between the acts of urination, but if it does not it may be squeezed out by stroking the urethra.

(a) Acute gonorrhoea, a mild hemorrhage may occur in any case.

(b) Acute posterior urethritis presents only terminal hematuria.

(c) Chancre within the urethra sometimes causes hemorrhage that may be obstinate and recurrent.

(d) Neoplasms and injuries to the urethra sometimes cause hemorrhage that may be alarming.

In any case of hematuria the signs and symptoms other than those of the urine itself must be considered, because the trouble may be outside of the urinary system. Blood appearing at the beginning of urination (initial hematuria), the later urine being clear, must come from the urethra. If the bleeding is from the prostatic urethra, it may flow into the bladder, and in this condition the last urine is often almost pure blood (terminal hematuria).

TREATMENT.

The great variety of causes of hematuria divide themselves into those that must be treated therapeutically and those that can be arrested mechanically. During the bleeding, rest in bed, liquid diet of milk, buttermilk and diluting drinks to lessen the tendency to coagulation and a soft free stool. Drugs by mouth are of doubtful value. Guyon gives turpentine, three drops every hour for 6 or 8 doses. Ergot in full doses is also recommended; oil of brigeron and gallic acid have also been used. And of these may be of value in moderate and persistent hemorrhage. In sudden profuse bleeding that threatens to exsanguinate the patient a full dose of morphin to quiet the restlessness and anxiety. Next empty the bladder with a catheter or suction pump as needed and then irrigate with hot antiseptic solution of silver nitrate, 1:2000, or hydrastis, one ounce to the pint. After this the catheter should be held in the bladder until the bleeding ceases.

If this does not control the bleeding a perineal cystotomy should be performed. All clots removed and a drainage tube inserted. This must be performed under the most rigid asepsis, because the bladder is particularly liable to infection after the hemorrhage and particularly so in cases of tuberculosis or neoplasms. Prostatic hemorrhage is often relieved by opium suppositories in the rectum and by suprapubic compresses.

I wish here to cite a couple of cases that may be of interest at this time.

CASE 1.—C. H., a boy, 12 years old. Four years ago he was vaccinated, and from that his parents date his trouble. About two years ago he suffered from hematuria, of slight amounts, every couple of days for about a month. During this time he passed under the care of several physicians and was finally relieved. During this time, the parents say, he appeared otherwise healthy. For the next year he had occasional hematuria, but most of the time the urine was normal. There is no record of the urine at this time, except the parents' statement. For about a year now blood has appeared constantly in the urine and has increased in amount until recently it was nearly always present and in large amounts. The urine at best is heavy and smoky-brown in color (and at times seems to be largely blood). As his mother says, "it is pure blood that runs from him." During the first year of this boy's illness no positive diagnosis could be made. About six months ago a tumor of the right kidney became palpable and continued to enlarge until it nearly filled the right side of the abdomen. The boy suffers very little pain, only a dragging sensation in the region of the kidney, but has grown waxy and anemic. The features are distorted by the anasæra. The boy cut his hand about three months ago while playing with a knife and, although the cut was one and one-half inches long and one-half inch deep, it bled no more than a scratch. Shortly after this incident the boy consulted another physician, and I saw no more of him until a few days ago, when I found him dying. After his death we did a partial post and found the right kidney about the size of a cocoon and somewhat the same shape. It was soft and boggy, quite friable, and easily crumbled under the fingers. The pelvis of the kidney was filled with a granulating mass, but there was no blood or blood clots. I was surprised at not finding clots or free blood in the pelvis of the kidney and very little on section of the growth. The liver was small and did not present any apparent secondary growths. All of the abdominal organs were very pale. Death was really due to anemia. No post was made of the chest, because the parents objected. I was not permitted to take out the tumor, but section of a small piece showed it to be a sarcoma.

During the time this boy was under my care I went through the whole list of drugs supposed to be good for hematuria, but none had any effect on him.

CASE 2.—Mrs. A. had been a nurse. Following the birth of a baby she was troubled with paresis of the neck of the bladder, which persisted after she was up and about, and she then insisted on catheterizing herself. Later she developed a sharp cystitis, with the formation of stone. Every couple of days she voided bits of calcium phosphate, and as these pieces would break off there would be considerable free hemorrhage. Sometimes this hematuria would accompany only one urination and again be quite free. In this way it was intermittent but persistent and blood corpuscles could be found in the urine at all times. Of course, it had a gradual exsanguinating effect.

I made a vesico-vaginal fistula and found the mucous membrane sheeted over with this deposit, and under the deposit the surface was ulcerated and granulating. Under local treatment and drainage she soon recovered.

CASE 3.—Mr. L. H. About three years ago I operated upon a man, 37 years old, for hemorrhoids. They were internal and quite extensive and I had to remove considerable mucous membrane. The result was very satisfactory as far as the operation was concerned, and the man has had no other rectal inconvenience since. When the bowels moved first after the operation (on the fourth day) he had quite a terminal hematuria, and ever since then whenever the bowels are constipated and the movements accompanied with straining there is danger of this hematuria.

There are no other symptoms of anything. The hematuria is always terminal and persists for the next few urinations. Sometimes it is quite sharp. It may recur in a couple of days or he may go months without a sign. During the interval there frequently is no blood in the urine. He frequently passes three or four months without any trouble and once he went eight months. The trouble is always brought on by constipation. He is caused so little trouble that he objects to a cystoscopic examination and I have never made one. I believe this is a case of varicose veins about the neck of the bladder or the prostatic urethra due to my operation upon the middle and superior hemorrhoidal veins when I removed the piles.

599 East Forty-sixth Street.

THE CLINICAL HISTORY AND DIAGNOSIS OF INFLUENZA IN ADULTS.*

GEORGE W. POST, M.D., CHICAGO.

The gripe is an infection, and as such the micro-organisms must gain entrance to the body either through the air passages or through the gastrointestinal canal or through breaks in the skin, and these modes of entrance furnish the key to the many-sided symptomatology of the disease. I do not know of many observations concerning entrance through abrasion of the skin, but in one case I am positive that the infection invaded the patient through lacerations occurring during childbirth. Invasion through the stomach is not so very common, and in the majority of cases invasion takes place through the air passages. The period of incubation is from one to four days, usually two or three. The mode of onset varies greatly. The first symptoms are frequently those of acute, simple fever without localization, characterized by two or three degrees of temperature and chilliness and a little weariness or inability to perform one's usual work. The patient feels as if he had lead in his heels, but in forty-eight hours or so these symptoms disappear. In the more severe onsets the fever may rise to 103 or 104 with a sharp chill, rapid pulse, an erythematous rash covering the whole body, and great prostration, mental and physical, but without any special localization, and clearing up in a week. Sometimes the person falls to the floor, as the very first noticeable symptom, and is taken up in an unconscious condition. This is most likely to happen to the very old. The occurrence of simple fever is very common, but when mild is quite often overlooked, although when the attention of an intelligent patient is drawn to it he will frequently remember such an incidence. The micro-organism is now safely established within the fluids of the body, where it will remain for a month or more, and it only remains for some exposure to cold and wet, or the chilling of the body when in perspiration, or some extra fatigue, to set up one or more of the many inflammations of grip. These are almost innumerable. The gastrointestinal form of the disease varies much in severity, from a little colic and diarrhea to a condition closely resembling cholera. There is usually a little nausea, a good deal of abdominal pain and from three to a dozen loose stools. The duration is from two to five days.

The most common inflammatory condition is that of the upper air passages, from which the disease has received the name influenza. It is commonly characterized by an acute rhinitis with abundant mucopurulent discharge, which is often bloody. Inflammation of the mucous membranes tends to spread rapidly in every direction, frequently to the frontal sinus, less often to the antrum and other accessory sinuses, usually proceeding to the nasopharynx, out to the middle ear and mastoid cells, and down through the larynx, trachea and bronchial tubes to the air vesicles themselves. The rhinitis and nasopharyngitis usually is accompanied by the popular picture of gripe. There is severe headache and pain in the eyeballs, which are usually present in inflammation of the upper pharynx. There is fever and acceleration of pulse and breathing. The ratio between pulse and respiration is about normal. Prostration, both mental and

*Read before the West Side Branch of Chicago Medical Society.

physical, is out of proportion to the constitutional symptoms. There are aches and pains, headache and bones ache and backache and soreness and sneezing and snuffling and coughing and groaning and curses. Grippe sufferers are apt to be capricious and short of temper. The duration of an uncomplicated case of this kind is about a week, but there are few uncomplicated cases, and the disease, by extension, brings into prominence other regions. Suppuration of the frontal sinus, inflammation of the middle ear with its concomitants, pharyngitis, laryngitis, tracheitis, bronchitis, asthma, bronchopneumonia, pneumonia, pulmonary abscess, pleurisy and empyema, are likely to follow in all sorts of combinations and orders of sequence.

The pneumonia of grippe deserves special mention. It differs from pneumococcus pneumonia in its great tendency to spread to and invade both lungs at the same time, and it is characterized by peculiar sharp, sticky râles, which are quite characteristic. Moreover, leucocytosis, which is high in pneumococcus pneumonia, is usually low in influenza.

Inflammatory conditions are also common in all parts of the nervous system from herpes labialis and herpes zoster through the list of peripheral neurites, omodynia, pleurodynia, lumbago, sciatica, etc., to meningitis, encephalitis and cerebral abscess. The innervation of the heart is frequently affected, as also is the endocardium, the pericardium and the myocardium. Acute nephritis is very common.

The convalescence from influenza is slow and treacherous. Mental and physical weakness are the rule, and complications are likely to arise at any time. Depression of spirits, melancholia, irregularity of the heart's action, and tuberculosis frequently follow.

In fact, the whole clinical picture of influenza is that of an infection, involving the entire organism, and the rational treatment should, if possible, be directed along the line of constitutional antiseptics. Diagnosis during an epidemic is not very difficult. Bacteriologic examinations should be made when possible. A note of warning should be uttered against the haphazard method of pronouncing everything grippe in which there is fever, or going to the other extreme, of denying the existence of influenza for fear of yielding to a popular fad. The method of diagnosis by exclusion, the diagnosing as grippe all these obscure conditions, which do not seem clearly to belong in any other category, is also to be deprecated. Such careless and unfounded conclusions are not worthy of the well-balanced physician.

JASPER COUNTY.

The Jasper County Medical Society met at Newton in the G. A. R. hall on Friday, July 3. Quite a number of the members of the Crawford County Society were guests, including Drs. T. N. Rafferty, H. N. Rafferty, Frank Dunham, Price and Low. Papers were read by the visitors and freely discussed by members of both societies. The Jasper County Society tendered the visiting physicians a banquet at the New American hotel. We believe that both County Societies derived marked benefit from this visit and we would suggest that other societies imitate our example.

JAMES R. PRESTLY, *Sec.*

JO DAVIES COUNTY.

The Jo Davies County Medical Society was scheduled to meet in Galena, July 9, but by special invitation from the Galena division of entertainment was invited to join a stag party and sail down the river to Camp 19, a beautiful spot on an island in the Father of Waters. Twenty-four physicians availed themselves of the opportunity. Dinner was awaiting the arrival of the party and everything necessary for the inner man was supplied. "New Life" was in abundance. Immediately after dinner the vice president called the meeting to order and the following responded to their names: Drs. Kreider, Renwick, Staples, Tyrrell, W. A. Smith,

Nadig, Seidenburg, Clark, Kaa, E. R. Lewis, Melhop, Barber, Guim, Hayden, G. D. Smith, Stafford, Bench, Buekman, Godfrey, with Miller of Galena, Hillard of Warren, and Langworthy, Linehan and Bigelow of Dubuque. Applications were received from the following physicians: W. H. Miller of Galena, S. H. Hillard of Warren, H. Linehan and L. S. Bigelow of Dubuque, Ia. The program of the day was opened with a paper by Frank Seidenburg on "Acute Gastric and Intestinal Indigestion." Dr. J. C. Renwick read a paper on "Acute Ileocolitis." In the absence of Dr. Boots, Dr. Tyrrell read his paper on "Acute Gastroenteric Infection." The papers were all well prepared and received, and the society voted to dispense with the discussion and spend the rest of the time socially. Stockton was selected as the next place of meeting for October 8.

D. G. SMITH, *Sec.*

LIVINGSTON COUNTY.

CESAREAN SECTION, LATE IN LABOR, WITH REPORT OF TWO CASES.*

J. P. WEBSTER, M.D., CHICAGO.

When the delivery of the child by the natural route is impossible, it may be removed by incising the abdomen and the uterus. Ambroise Paré condemned the ante-mortem operation because of the frightful mortality. The cause of death was hemorrhage or sepsis. Hemorrhage, because no stitches were taken. They supposing the alternate contractions of the uterine muscle would tear out the stitches. Porro in 1870 amputated the uterus, brought the stump up to the abdominal wall and included it in the abdominal stitches. This was a distinct advance, and reduced the mortality one-half, by preventing leakage into the abdominal cavity, and resulting peritonitis.

The next great advance in technique was Müller's idea of making a long incision, and lifting the womb out onto the abdomen and surrounding it with towels before incising it. This prevented soiling the peritoneal cavity. Müller advocated using the elastic ligature around the tubes and broad ligaments to prevent hemorrhage. It remained for Sänger of Leipsic, in 1882, to perfect the technique of Cesarean section, and radically improve the mortality. His success may be attributed to three causes: First, a strict antiseptic technique. Second, a complete closure of the uterine wound, by multiple suture. Third, the deliberate selection of the operation before the beginning of labor, and its performance before the patient's strength had been exhausted, or her passage infected by repeated examinations, and fruitless attempts to deliver by forceps or version.

The Porro operation is restricted to very narrow limits. The Sänger method is of the widest application. The Porro operation should be given the preference, if the uterus is infected; celio-hysterectomy, if the vagina is obstructed from any cause that can not be removed; malignant disease of the cervix; in osteomalacia; complete inertia; where rupture of the uterus has taken place, into the broad ligament of either side. Relative indications are not easily formulated and each operator must decide according to conditions found to exist. A conjugate diameter of two and one-half to three and one-fourth inches, and moderate obstructions by tumors of the pelvis, or outlet, also eclampsia, or placenta prævia, may be classed as relative, as symphyseotomy, version, forceps, or craniotomy may be selected.

The indication is absolute when it is impossible to deliver the child living, dead or mutilated, through the natural canal. Ordinarily we should select the operation that entails the least danger to the woman. Also, when there is a very large child and a small pelvis. In quite a large majority of patients, on whom it is found necessary to perform Cesarean section, the labor has been a protracted one. They have been under an anesthetic for hours, forceps have been applied time and again, or many futile attempts have been made to apply them. The patient is in a poor condition to withstand the added shock of a celiotomy.

*Presented to the Livingston County Medical Society, at a meeting held in Forest, Nov. 7, 1907.

Infection has been carried by the examining fingers or forceps, into the uterine cavity. Under these conditions, where some degree of infection is probable, we are justified in selecting the Porro operation, as the one giving our patient the best chance for recovery.

This question must be settled at the time of the operation, by the individual operator. The best results follow when we select time and place. Select the time a few days previous to the expected date of labor. Select the place where she can be prepared as carefully as for any abdominal operation, the bowels carefully regulated, all parts disinfected, thoroughly scrubbed with soap and water and all hair removed. The consent of the patient and husband must be first obtained, after explaining the operation and its dangers. Then, as a rule, the consent of the parents must be secured, and of the spiritual adviser as well, as people of a religious belief have very firm convictions on the subject. The patient and husband must decide what is to be done. If they decide in the negative, we must adopt some other radical measure, or withdraw from the case, after another medical adviser is at the bedside of the patient.

The same instruments will be required that are used in an abdominal hysterectomy. Many operators prefer chloroform to ether, as they claim there is less danger of the child being asphyxiated. The incision in the abdomen must be from five to eight inches long. The length of the incision depends on whether the uterus is to be incised within the abdomen, or after it has been lifted out. If left in the abdomen, the incision may be two or three inches shorter, say about five inches. If lifted out, the incision must be about eight inches long. If great care is exercised in packing sponges and towels around the uterus, and covering the cut edges of the abdominal parietes, no infection need be expected.

The best method, whether the uterus is left in the abdomen or lifted out, is to use a sheet of rubber dam with a slit cut in the center, about four inches in length. This sheet of rubber dam can be slipped through the slit. In this way the abdominal cavity is thoroughly protected, as the sheet does not allow anything to come in contact with the peritoneum, or the edges of the wound. A very satisfactory part of the technique is to close the upper angle of the abdominal incision with two or three silkworm gut, mass stitches, before the uterus is incised, as soon as it is lifted outside of the abdominal cavity.

The so-called new incision of Fritch has but little to commend it, for the child can not always be extracted through the incision, and it is necessary to make a longitudinal cut to complete the delivery, which defeats the object of the transverse incision. The incision in the uterus must not be less than five inches, if less, the uterus is apt to be torn, and the tear does not always continue in the same line as our incision. Ragged tears in the uterus are very troublesome to close, and are apt to slough after closure. We can not always be certain when we incise a uterus, whether we will do a Porro or a Singer operation. If we make a small incision in the uterus and tear the balance, we add greatly to shock, as dull instruments, or tearing tissue cause shock, as has been demonstrated by Crile. The incision may be made in ten seconds with a knife. It can not be performed in less time by tearing methods.

Cesarean section may be performed in the interest of either mother or child, when a safe delivery can not be accomplished by other well known methods, such as version or forceps. The physician should not decide in a grave case between craniotomy or Cesarean section. He should call in council, lay the case before the patient and friends, and leave the decision to them. In actual practice, our first duty is to the mother. In choosing between Cesarean section and symphysiotomy when the indications are a moderate obstruction within safe limits, or where but very little more space is needed for safe delivery. Then if the operator has had but a limited experience in abdominal surgery, he had better choose symphysiotomy. The mortality is from 7 to 10 per cent. in symphysiotomy. In Cesarean section, 5 to 7 per cent.

Vaginal Cesarean Section. Dührssen Method. Indications are normal size of child and pelvis. Pregnancy at or near term. Malignant growth of the uterus. Obstructing tumor, which renders its delivery safe through the vagina. Stamm

recommends it, when there is an undilatable cervix; when the mother's life is endangered and may be improved, or prolonged by a rapid emptying of the uterus. For example, eclampsia, uremia, myoma of the cervix or carcinoma.

TECHNIQUE.

The anterior and posterior cul-de-sac are dissected up. The bases of the broad ligaments and vessels are clamped or tied off. The cervix is split up on two or four sides, extending above the internal ring. The membranes are then ruptured, the child delivered, placenta extracted, and the hysterectomy completed in the ordinary way.

METHOD OF J. CLARENCE WEBSTER, M.D.

"A circular incision is made through the mucosa covering the vaginal portion of the cervix, close to the fornix, and is extended into each lateral fornix for half an inch, the cervix being pulled downwards with volsella. The bladder is then held up with a retractor and the cervix is divided in the middle line anteriorly and posteriorly, if the case be at or near full term. If it be premature the posterior lip of the cervix need not be divided. The cervical incision is then continued into the lower uterine segment anteriorly as far as necessary, care being taken not to enter the peritoneal cavity. In this way an opening in the uterus may be obtained, 8 to 12 c.m. in length, which allows the passage of the fetus. Bleeding is controlled by forceps. If it is thought advisable, the uterine vessels may easily be secured. Through the incision, the fetus is extracted by version or forceps. The placenta and membranes are then removed and a gauze tampon placed in the uterus. The incisions are then closed with catgut."

The mortalities early in labor, 1.2 per cent., is very gratifying. The mortality when section was performed early in labor is put at 3.8 per cent., and late in labor at 12 per cent. These mortalities are selected from some 300 cases. In the two cases I shall report, the section was performed late in labor, after the patients were exhausted. In both, the pulse rate was high, 120 to 130. The second, 160 when the patient was placed on the table. One author says: "Late section has become thoroughly discredited and is now seldom or never performed by operators of experience in cases which have been under their own care from the start." Late sections must be classified among emergency operations, and must necessarily have a high mortality. "If however, the date of election is the safest time for the performance of the section in cases of the absolute indication, it is of necessity also the safest time for the section when done for the relative indication." The so-called test of labor is our only sure method of settling the question when section is indicated in the absence of extreme deformities of the pelvis, but we should not allow the labor to go on to the complete exhaustion of the patient. In city practice, this rule is quite easy to follow, because of the nearness of hospitals and good obstetric surgeons. In the country it is much more difficult, especially in bad weather, and worse roads, and a good obstetric surgeon not procurable.

My paper does not deal with placenta prævia or eclampsia, but with Cesarean section, late in labor, which then becomes an emergency operation. We must meet the emergency as we would a crushing injury of the leg or a strangulated hernia. Conjugate measurements are now of but little importance. It is now a question of good sense, of good judgment, as to whether this fetal head can be delivered through this maternal pelvis.

The etiology of death, in section early, has been faulty technique and accidental infection. The etiology of death late in labor is from peritonitis and the cause of the infection, repeated examinations and repeated attempts at high forceps delivery, both carrying infection into the uterine cavity. The mortality decreases in proportion as we decide in advance of labor whether a section is indicated or not, and are guided in accordance. We may allow young, vigorous women the full test of labor, when the obstruction is not well defined. Woman who have borne a number of children, whose labors have been prolonged, who have some mechanical obstruction or there is great disproportion between the

fetus and the pelvic outlet, women who escape with their life, as it were, on whom high forceps delivery has been necessary with each labor, who react very slow, are anemic for months. We may think of section in such cases.

I wish to report two cases on whom I performed Cesarean section. One was by the classical Sanger method, and the other by celiohysterectomy. Both recovered.

CASE 1.—I was called to see Mrs. H., Dec. 19, 1900, age 22, found she had regular pains, severe and bearing down in character. The nurse had her prepared when I arrived. I examined her with rubber gloves. I discovered nothing abnormal. The cervix dilated completely, but the head did not descend. We gave her chloroform and applied the forceps easily, but could not bring the head down. The head seemed to rock as if on a pivot. We had now worked faithfully for two hours with the forceps. I placed her in the Englewood Hospital and prepared her for a Cesarean section. It was decided best not to attempt to lift the uterus out of the abdomen, because of the large size of the child, for it would then be necessary to carry the incision well above the umbilicus. I incised the uterus as it lay in the abdomen. I grasped the feet and extracted the child easily. The child was alive and cried lustily.

The placenta was separated and removed. The uterine cavity was packed with hot towels to control the hemorrhage. The incision in the uterus was closed with three rows of stitches, the mucosa was closed with fine silk. The serosa was closed by an inversion stitch of No. 2 chromoform catgut. A slight infection took place where the head of the child touched the abdominal wound, while extracting it. Time of the operation was 45 minutes. The patient made a prompt recovery and left the hospital at the end of three weeks. The abnormality, which prevented the descent of the head, was an exostosis, three-fourths of an inch long, on the promontory of the sacrum.

Jan. 24, 1902, about one year after the operation, at the earnest solicitation of the patient and husband, I opened the abdomen and sealed the tubes close to their uterine attachment, using the electro pressure forceps of Skeene. The electro pressure method with heat, or pressure and heat applied with a thermo-cautery, or soldering iron, desiccating and sterilizing the tube, was first used by me, Jan. 24, 1902. I have used this method six times. One patient menstruates, five do not. This patient felt that she could not run the risk of again becoming pregnant with the probability of undergoing another section. She made a prompt recovery from this operation also, and has not menstruated since.

CASE 2.—I was called into the country, by a telegram which read: "Come prepared to do section." We drove eight miles farther into the country, arriving about 3 a. m. I found a woman, Mrs. F., aged 32, German, who had been in labor 36 hours. Pulse 130, temperature 96. Drs. Whitmir and Ellingwood had tried in vain to apply forceps. I decided to perform section for the following reasons: First, the patient was rapidly passing into a state of collapse. Second, the head was immovably fixed and the cervix only partly dilated. Third, I feared rupture of the uterus was taking place, which was confirmed at the operation. Fourth, light must be furnished by household kerosene lamps and lanterns, which could be utilized better in an abdominal, than in vaginal operation. Fifth, the anterior uterine wall was so thick, it prevented the descent of the head. Sixth, because of all the above stated reasons, a section offered the best and quickest termination of labor.

Two shelves for the lamps to rest on were made by nailing two short pieces of boards to the top of a window sash; lantern also boasted of a very dull reflector. These furnished us with a very fair light to operate by. One physician and the nurse began the preparation of the patient. While these preparations were in progress, the rest of us improvised an operating table, using a dining room table and a sewing machine. An instrument and dressing table was improvised from a small stand and two leaves from an extension table. The usual thorough aseptic measures for an abdominal section were taken.

The patient was now placed on the table. Examination of the abdomen revealed a scar in the median line, three inches in length. She said: "An operation had been performed for some retrodisplacement the year previous." Conception followed soon after her return home from the hospital. Pregnancy had been normal. She was her own domestic. The patient was given as hasty a preparation as the time and her condition would permit of. The pulse soon arose to 160 and was very feeble. Examination of the abdomen showed a prominent point six inches to the left of the umbilicus. It was very tense and cone-shaped. After she was placed on the table, this firm prominence seemed much softer and I feared a rupture of the uterus had taken place, because of the rapid rise of the pulse and the rapid collapse. The incision began at the umbilicus and ended close to the pubes. Two inches above the pubes, the uterus was found firmly anchored to the abdominal wall; this fixing of the uterus as gestation advanced, caused it to assume a crescent shape. As soon as I loosened the uterus from its attachment, the point of uterine attachment passed upward and disappeared under the umbilicus.

I lifted the uterus out of the abdomen and surrounded it with sterile towels. I made an incision six inches long in the median line. I readily found the feet and extracted the child with some difficulty, it taking about 20 seconds. The child was dead. It was not weighed, but estimated at twelve pounds. The placenta was found detached. The head and part of the shoulders had passed out of the uterus through a rent. Forceps were placed on the right broad ligament to control hemorrhage, and the rent in the uterus was examined, which was found to be on the right posteriolateral, and extending well down into the vagina, out into the right broad ligament, through the cervix.

I decided to do a celiohysterectomy, because of the extensive laceration. I applied the clamp forceps through the rent, to both the anterior and posterior surfaces of the cervix. The bladder was dissected away, and the uterus quickly removed. The cervix was closed with No. 2 chromoform catgut. The rent in the peritoneum, along the ureter and broad ligament, was closed in tiers, with No. 1.20 day catgut. The ovarian and uterine arteries of the right side were both found to be ruptured. The pressure of the child's head against them prevented fatal hemorrhage before extraction.

Twenty minutes before placing the patient on the table, she was given morphia sulph. gr. $\frac{1}{4}$, atropia sulph. gr. 1/100. Atropia gr. 1/100 was given at the close of the operation. Four ounces of normal salt and four ounces of strong coffee were given per rectum every three hours. Two quarts of saline solution was introduced under the breasts near the close of the operation. She came off the table nearly pulseless. At no time was she under profound anesthesia. About 300 grams of ether was used. She improved steadily after the second day. No peritonitis developed and no tympany.

The eighth day there was some odor, and I removed through the vagina, a small broad ligament slough. The tenth day, one of the attending physicians, Dr. Whitmir, removed a small slough. A partial separation of the cervix, on the right side, took place, but not of the peritoneal surface. Some suppuration of the skin wound took place, lasting about ten days. The patient was doing her own housework within three months. The tenth day urine passed into the vagina, indicating a ureter or the bladder had sloughed, but a later examination proved it to be the ureter.

I am well aware of the aversion you may have toward the repeating of cases in detail, but I feel certain that there is enough of interest to justify such a recital.

CONCLUSIONS. SUTURING THE UTERUS.

1. Catgut may be used for the first row of sutures, leaving the knot in the uterine cavity. The second row of stitches should be of silk or linen. The third row or the serosa stitch should be of silk, linen or fine silkworm gut. All knots tied very tightly, as the alternate relaxation and contraction may untie the knot. It has untied catgut stitches and caused a fatality.

2. The mortality in Cesarean section early, for both mother and child, is lower than by other methods. This should stimulate us to give our patients a more careful examination early, to determine the true condition.

3. Practice pelvimetry on every suspected ease or previous difficult labor.

4. Pelvic measurements should be made on all expectant mothers in first gestation.

5. Repeated vaginal examinations are to be condemned, especially in cases where disproportion between mother and children seem to exist.

6. Septic infection in some degree takes place after section in a large per cent. of cases, following attempts at high forceps delivery, and repeated digital examinations.

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MACOUPIN COUNTY.

The Macoupin County Medical Society held its second quarterly meeting in the Masonic Reading Room, Carlinville, July 28, 1908. Dr. J. P. Denby, presided, and Dr. J. Palmer Matthews served as secretary, pro tem. The following members were present: Drs. Denby, Davis, Bell, Collins, J. Pitt and J. Palmer Matthews, C. J. C. Fisher and E. S. Head of Carlinville; Dr. Walton of Medora; Drs. G. E. Hill, R. S. Cowan and R. J. Mitchell of Gerard; Dr. Morgan of Verden; Dr. Morgan of Nilwood; Dr. English of Gillispie, and Dr. Knoop of Chesterfield. The secretary read the report of the last meeting and Dr. Pattison's paper on "The Nostrum and Proprietary Medicine Problem," as published in THE JOURNAL. The regular program, as printed, was continued until the October meeting and the program committee appointed Drs. Knoop and Van Wormer to choose each his own subject for the next meeting. Dr. Collins presented a case of psoriasis. Members present at the American Medical Association meeting in Chicago were reminded of Dr. Zeisler's similar case in the discussion of which Dr. Montgomery of Rush, presented the theory that the condition is due to intestinal toxemia.

After a luncheon at the Central Hotel the society discussed the question of a fee bill and appointed a committee of three to submit one to the next meeting. The committee as appointed is composed of Drs. Fisher, Morgan and English. A letter was read from Dr. Carr regretting her inability to be present because of illness. The society adjourned to meet in Carlinville, October 27.

L. PALMER MATTHEWS, *Sec., pro tem.*

OGLE COUNTY.

The regular quarterly meeting of the Ogle County Medical Society was held at the courthouse, Oregon, Wednesday, July 15, 1908. The meeting was called to order by the President, J. M. Beveridge, of Oregon. Minutes of the previous meeting were read and approved. The roll call found the following members present. Drs. J. C. Akins, J. M. Beveridge, A. H. Beebe, S. D. Houston, W. W. Hanes, J. A. Johnston, J. Krebs, Louise Keaton, J. T. Kretsinger, J. Pankhurst, J. C. Price, Joseph Ripogle, J. B. Roe, H. H. Sheetz, L. E. Schneider, J. F. Van Voorhes, O. G. Brubaker and C. R. Brigham. Seven new members were elected, viz.: Dr. A. H. Beebe of Stillman Valley, Dr. Royal O. Brown of Forreston, Dr. W. E. Coquillette of Byron, Dr. W. B. Donaldson of Polo, Dr. Louise Keaton of Polo, Dr. Josef Kipogle of Stillman Valley, and Dr. S. C. Thompson of Byron.

The following officers were duly elected for the ensuing year: President, Dr. J. M. Beveridge, Oregon; vice-president, Dr. J. A. Johnson, Byron; secretary and treasurer, Dr. J. T. Kretsinger, Leaf River; delegate to State Medical Society, Dr. J. M. Beveridge; alternate, Dr. S. D. Houston, Polo; censor, Dr. W. W. Hanes, Mt. Morris.

Dr. J. W. Pettit, Ottawa, Ill., and president of the State Medical Society, gave a pleasing and instructive lecture on "Tuberculosis." Every physician in the county should have been present and listened to this plain and instructive talk on this most dreaded disease. Dr. Pettit laid particular stress on an early diagnosis, treatment and care of the patient years after they were supposed to have been cured of the disease.

The discussion brought out many interesting questions, and Dr. Pettit in his closing remarks answered all questions to the satisfaction of all present.

Dr. J. H. Stealy of Freeport, Ill., gave a short talk on "The Beck Bismuth Treatment of Tuberculous Cavities." The doctor was treating ten or fifteen cases, but not long enough to note much perceptible change, but thought in a few cases there was a little change, or slight improvement. Dr. J. M. Beveridge gave a report on what he observed as delegate to the State Society, after which the society adjourned, to meet at Mt. Morris at the next regular meeting.

WAYNE COUNTY.

The Wayne County Medical Society met at Dr. Bean's office, Thursday, July 16, 1908. The morning session began at 10 a. m. with Dr. W. M. Johnson in the chair. Members present: N. J. Hall, T. J. Hillard, F. Bean, C. O. Truscott, J. L. Young, E. M. Cates, E. E. Roberts, J. P. Walters and W. M. Johnson. Dr. J. T. Blakely, of Mt. Erie, who made application for membership some months ago, was duly elected. M. T. A. McLin, a medical student, was elected an honorary member. Dr. C. T. Hunter, of Springerton, was a visitor at the meeting. Dr. C. O. Truscott read a paper on "Necessity of a Greater Knowledge of *Materia Medica*," in which he sounded a note of warning to the physicians who are using various compounds in tablets, elixirs and other forms, and labeled "Headache," "Migraine," "Cholera Infantum," "Rheumatism," "Anticonstipation," "Tonsillitis," etc., instead of using their own prescriptions. The paper was discussed by most all present. The subject of "Cholera Morbus" was opened up by Dr. J. J. Hall by giving cause, prevention and treatment in a summary manner which was freely discussed by all present. The subject was closed by Dr. Hall, who answered all criticism to his paper. Adjournment was taken to 1 p. m. at which time Dr. T. J. Hillard read a paper on "Autointoxication." The subject was ably discussed by Drs. Truscott, Hall, Bean and others. The subject of "Dietary Control in Gastrointestinal Diseases" was freely discussed by Drs. Hall, Bean, Roberts, Hunter, Walters and Cates. The paper on "Summer Diarrhea in Children," was discussed by E. E. Roberts and participated in by all present. Dr. C. T. Hunter, of Springerton, was called out on this subject, as well as on the subject of "Congestion." He gave a very interesting and instructive talk for which the society extended to him a vote of thanks. Dr. E. M. Cates reported a very interesting case of chicken-pox contracted before birth. This was one of the most interesting and profitable meetings ever held by this association.

J. P. WALTERS, *Sec.*

NEWS OF THE STATE.

PERSONAL.

Dr. Carl Beck returned from Europe July 27.

Dr. and Mrs. Walter H. Allport have returned from Europe.

Dr. Eugene O. Christoph has resigned from the staff of St. Bernard's Hospital.

Dr. Lewis A. McFadden, Peoria, has recovered and resumed practice after a long illness.

Dr. Clarence, Chicago, has been appointed instructor in physiology at the University of Texas.

Dr. Frank S. Johnson, Chicago, who was recently operated on for appendicitis, has made a complete recovery.

Dr. Edwards L. Kern, Rock Island, has been reappointed medical director of the Modern Woodmen of America.

Dr. Hyman Cohen has been appointed chief disinfecter of the health department, vice Dr. Charles W. Behm, deceased.

Dr. William A. Evans has been made professor of sanitary science at Northwestern University Medical School, Chicago.

Dr. Daniel N. Eisendrath, Chicago, has been made professor of surgery in the College of Physicians and Surgeons.

Dr. Joseph C. Dodds, Champaign, has been appointed head physician of the Order of Modern Woodmen of America for Illinois.

Dr. and Mrs. Wellington T. Stewart and their son, Ross, of 978 Douglas boulevard, Chicago, are taking a ten days' trip to Canada.

The degree of D. Sc. was conferred on Dr. John B. Murphy by Sheffield University at the recent meeting of the British Medical Association.

Dr. Thomas J. Sullivan has been made chief of staff, and Dr. Charles P. Caldwell, head of the dispensary, St. Bernard's Hotel Dieu Hospital, Chicago.

Dr. Silas T. Richman, Chicago, was elected supreme physician of the United Order of Foresters, at the annual convention in St. Paul, July 21.

Dr. F. W. Searles, New Lenox, one of the oldest and best known practitioners of Will County, was seriously injured in a runaway accident, August 7.

Dr. and Mrs. William N. Senn, Dr. and Mrs. John B. Murphy, Dr. David F. Monash and Dr. and Mrs. Henry S. Tucker, all of Chicago, have sailed for Europe.

Dr. Frank P. Norbury has recently opened an office at 301 Humboldt Building, St. Louis, Mo. Hours: 11 a. m. to 1 p. m. on the first and third Wednesdays of each month.

Dr. John W. Dreyer, Aurora, has been appointed head physician by the Modern Woodmen, vice Dr. James A. Rutledge, Elgin, who resigned and was subsequently elected national director.

Dr. G. W. Boot announces the opening of an office at 100 State Street, Chicago, for the treatment of the ear, nose and throat. Hours: 12 to 1. Dr. Boot will continue his office at 800 Davis Street, Evanston, as heretofore. Hours: 9 to 11 a. m., 6 to 7 p. m.

Dr. G. G. Craig, Sr., who has been the post surgeon at Rock Island Arsenal for nineteen years, has been commissioned a first lieutenant in the Medical Reserve Corps. The document bears the signatures of President Roosevelt and Secretary of War Luke E. Wright. This is in accordance with the new medical bill, which passed the last congress, increasing the standing of the medical corps and commissioning such surgeons as it was desired to retain.

NEWS ITEMS.

By a baseball game on July 20 more than \$1,000 was netted for the Chicago Union Hospital.

C. F. Herleeka, a druggist, arrested, charged with illegally selling cocaine, is reported to have been fined \$200 and costs.

The new St. James Hospital, Pontiac, erected at a cost of about \$100,000, was dedicated July 19 with appropriate ceremonies.

The late Mrs. Eugenia Shumway, Polo, in her will has bequeathed \$1,000 each to the Wesley Hospital and the Deaconess' Training School.

The outdoor performance at Ravinia Park last week netted a little more than \$1,000 to the funds of the Tribune Summer Hospital, Chicago.

For the first time this year the Isolation Hospital, Chicago, is reported as having no tenant, and it is now undergoing a thorough disinfection.

An addition is to be made to the Hospital of St. Anthony of Padua, Chicago, and will cost \$200,000. The principal addition will be a fire-proof building 112x50 feet.

It is reported that out of 16,586 children examined by the seventy-nine medical inspectors of the Health Department, Chicago, since July 20 only 281 were found to be ill.

Cook County Hospital is now the owner of the entire block on which the hospital is located. The acquisition was a piece of land 550 feet long and 16 feet wide. The amount paid for it was \$9,720.

The Chicago Tuberculosis Sanitarium, at Winfield, will be opened in about six weeks. Dr. Theodore Sachs will head the medical staff. The institution is situated on an elevation fronting the DuPage River, and is being established under the auspices of the women of the Chicago Jewish Club.

The plans for the tuberculosis infirmary on the grounds of Cook County Hospital have been approved by the county board. The building is to be 158x124 feet, five stories in height for the main building and

four stories in height for the wings. The top floor of the former and the roof of the latter are to form sun parlors and exercising grounds for the patients. The building is estimated to cost \$300,000 and will accommodate 320 patients.

Mandamus proceedings were begun recently by Joseph William Zeli, a graduate of the National Medical University, a medical night school, of Chicago, 1908, to compel the Illinois State Board of Health to recognize his diploma. The Illinois board, last fall, declared this school was not in good standing. The case was to have been tried in the Superior Court of Cook County, Monday, August 3, and the board was ready, but no one representing the plaintiff appeared.

During July 669 babies under one year of age died in Chicago. The Health Department is of the opinion that probably two-thirds of these deaths could have been avoided, and most of them may be attributed to ignorance and neglect of the parents. The department is now directing the work of seventy-five physicians in the crowded districts of the city in the line of education of mothers in the proper care of their children. It is reported that the most common is the overfeeding and the feeding of improper food.

Charles Alling, Jr., attorney for the State Board of Health, began suit July 27 against five persons, all of Chicago, on charges of practicing medicine without licenses. The defendants are: Pauline Bechtel, 305 Larrabee street, said to have been convicted before on a similar charge; C. J. Uhl, 5937 Halsted street, said to have been convicted before on a similar charge; Francis Langelier, 381 Blue Island avenue.; S. S. Thompson, 3159 Rhodes avenue; H. D. Pattee, Palace Hotel, North Clark and Indiana streets.

The Peoria Association for the Prevention of Tuberculosis, with the aid of the national society, held a tuberculosis exposition at Peoria, July 27 to August 6, inclusive, at which there was an average attendance of nearly seven hundred a day. Each evening lectures were given and lantern slides shown. Among the interesting features were maps showing the location of each death from tuberculosis for the last fifteen years and daily exhibits showing the amount of tuberculous meat condemned at the local slaughter houses by government inspectors. Dr. Sumner M. Miller is president of the society and Dr. Jay H. Bacon secretary.

Dr. William C. French, a graduate of Hahnemann Medical College, of Chicago, in 1906, was arrested by the Illinois State Board of Health, August 1, on the charge of selling a bogus diploma for \$75 to Stanislaus M. Kolar, a drug clerk. The diploma bore the name of the Andrew Carnegie University and was signed by "William Gayle French, A.M., M.D., president of the board of trustees; Frederic C. Hammore, Ph.G., secretary of the faculty, and W. M. Marquardt, B.S., registrar." An institution by the same name was chartered in Illinois, July 31, 1908, but by different persons than those whose names appeared on the diploma.

Sixty students have been enrolled in the summer classes of the Chicago School of Civics and Philanthropy under the auspices of the

Chicago Commons. Of this number twenty-four are attendants in various hospitals for the insane and are studying particularly the methods of rehabilitating the minds of their patients. There are thirty-six in the course of "social agencies of modern cities." In this class the students are learning to become probation or truant officers in reformatory aid societies or settlement workers. The course, which is in charge of Edward Worst, of the Chicago Normal School, gives instruction in the methods of educating the insane and in varieties of recreation and games adapted to the use of such persons.

The Ottawa Tent Colony, on Aug. 2, 1908, was host to eighty physicians and their wives from Chicago. The occasion had been planned by Dr. J. W. Pettit, medical director of the Tent Colony, and he invited all the members of the Chicago Medical Society to join in the excursion to Ottawa on that day. The party left Chicago at 8:30 a. m., and upon their return reached Chicago at 10:30 that night. The weather conditions were unusually favorable for the outdoor entertainments which had been planned. The party was welcomed at the colony by Mayor Hall, of Bugville, who turned over to the company the key to the "City of Lungers." Some three hours were spent in inspecting the equipment and work of the Tent Colony, after which luncheon was served. The party was then taken by boat down the river to Horseshoe Falls, Wildcat Canyon and Starved Rock. Dinner was served at the hotel and the return trip provided on the Interurban Trolley Line to Ottawa. The officers of the Tent Colony were most cordial in their reception and generous in the whole day's entertainment. It combined a few hours' study, with many hours of pleasure and recreation.

With the completion of the quarters to be occupied by the State Psychopathic Institute at the Illinois Eastern Hospital for the Insane, Hospital, an important step has been taken in the matter of the care and treatment of the insane of the state. Dr. H. Douglas Singer is director of the institute, and the scope of the work will be broadened so as to form systematic instruction along the most modern lines of all assistant physicians of insane hospitals in the state. One or two assistant physicians at a time will be sent from each of the eight state institutions to the institute to receive from three to five days' preliminary instruction under Dr. Singer, which will consist in the introduction of the new system of examination and record keeping. After this instruction has been given, Dr. Singer will visit each institution and spend about a week at each; will personally inspect the work that is being done, and make suggestions toward securing uniformity. Following this, a regular course of from four to six weeks, including laboratory work, will be given at the institute. In the equipment of the institute laboratory special attention has been devoted to research and pathologic work and clinical investigation.

The following simple instructions have been set forth in the City Health Department, Chicago, circular on "Hot Weather Care of Children:" 1. Avoid overfeeding. The baby should be fed not oftener than

every three hours through the day and once at night. 2. Avoid improper foods. A child under one year of age must not be given meat, potatoes, pickles, bananas, candy, beer or other solid foods or alcoholic drinks. 3. Avoid impure milk. Feed no dirty or soured milk to the baby. Get only the best milk for babies. None are so poor as to be unable to obtain the best milk, for the Milk Commission of the Children's Hospital Society has established milk stations throughout the congested areas of the city and will supply pure, wholesome milk for sick children at a price below cost. Keep the babies' food clean. Keep the milk cool to preserve it until ready for feeding. Of course, it must be fed warmed and properly prepared. Keep flies away from the babies' food. See that the feeding bottles and rubber nipples are thoroughly scalded each time. Do not use rubber tube—just a nipple—and keep it clean. 4. Avoid "pacifiers." They produce enlarged tonsils and adenoids, and not infrequently are means of infections. 5. Give baby a drink of water. Boil the water first and keep in clean vessels. 6. Avoid heavy clothing. Dress lightly in hot weather. Baby will be better stark naked, except for napkin and binder. 7. Keep baby in open air. Outdoor air, even of a dirty street, is fresher and better than air in the house. Avoid the sun. 8. Give baby a bath. It will stand the heat better if given a bath at least once a day. Bathe before feeding. 9. Let baby sleep alone. See that the crib is screened against flies. 10. Do not drug the baby. If taken sick, call a physician. Midwives are not competent to attend sick children, and "over-the-counter prescriptions" obtained in drug stores are extremely dangerous. Both practices are illegal.

The August 15 issue of the *Journal of the American Medical Association* is the educational number. Considerable expense and time has been given to the accurate assembly of facts and statistics relative to the medical schools in this country. The readers of THE JOURNAL will be especially interested in the summary of the Illinois Medical Schools:

Illinois, population 5,418,670, has thirteen medical colleges, four of which are night schools, all located in Chicago, a city of 2,049,185, and are as follows: Rush Medical College, Northwestern University Medical School, College of Physicians and Surgeons, Hahnemann Medical College, Bennett College of Eclectic Medicine and Surgery, Hering Medical College, Jenner Medical College, College of Medicine and Surgery, National Medical University, Chicago College of Medicine and Surgery, and Reliance Medical College.

Rush Medical College.—This school was founded in 1837, organized in 1843, was the medical department of the Lake Forest University from 1887 to 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 83 professors, 155 associates, instructors, etc., a total of 238. The requirements for admission are a four-year high school education, and, in addition thereto, two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. The course covers four years of nine months each. An optional fifth year, consisting of a hospital internship or of a fellowship in one of the departments is offered. All freshman and sophomore studies are given at the University of Chicago. The last two years are given in the clinical buildings at the corner of Wood and Harrison streets. The total fees are \$180 each year. A matriculation fee of \$5 is paid but once, and there are incidentals amounting to from \$2 to \$5 annually. The Deans are Dr. Frank Billings, 100 State street, and

Dr. M. Dodson, 34 Washington street. Total registration for 1907-08 was 586; graduates, 70. The sixty-sixth fiscal year begins July 1, 1908.

Northwestern University Medical School, Dearborn street, between Twenty-fourth and Twenty-fifth streets. Organized in 1859 as the Medical Department of Lind University. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. The faculty comprises 150 professors and 83 lecturers and assistants, a total of 233. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University plus one year of college work in physics, chemistry, biology and modern languages. The course covers four years of thirty-six weeks each. The fees are \$175 each year. A matriculation fee of \$5 is paid but once. The secretary is Dr. Charles Louis Mix. The total registration for 1907-8 was 533; graduates, 135. The forty-ninth year begins Oct. 6, 1908, and ends about June 15, 1909.

College of Physicians and Surgeons, Honore and Congress streets.—Organized in 1882. The first class graduated in 1883. It became the Medical Department of the University of Illinois in 1896. The faculty is composed of 42 professors, 156 assistants and instructors, a total of 198. The fees are \$145 each for the first two years; \$150 for the third, and \$175 for the fourth. The Dean is Dr. William E. Quine, 103 State street. Total registration for 1907-8 was 501; graduates, 146. The twenty-seventh session begins Oct. 1, 1908, and ends June 9, 1909.

American Medical Missionary College, 888 Thirty-fifth Place.—Organized in 1895. The first class graduated in 1899. The faculty numbers 27. The course covers four years of nine months each. Total fees are \$80 for each of the four years. The Secretary is Dr. E. L. Eggleston, Battle Creek, Mich. Total registration for 1907-08 was 42; graduates, 4. The fourteenth session opens Sept. 15, 1908, and closes June 15, 1909.

Chicago College of Medicine and Surgery, 333 South Lincoln Street.—Organized in 1901 as the American College of Medicine and Surgery (Chicago Eclectic Medical College). The latter part of the name was dropped in 1902 when it became the Medical Department of the Valparaiso University. Eclecticism was dropped in 1905. The name was changed to the above in 1907. The course covers four years of eight months each. The faculty consists of 52 professors and 18 lecturers and assistants; total of 70. The annual tuition fee is \$100; matriculation fee, \$5. The total registration for 1907-08 was 325; graduates, 70. The eighth session begins Sept. 29, 1908, and ends May 18, 1909. The Secretary is Dr. J. N. Roe.

Hahnemann Medical College and Hospital of Chicago, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. The Registrar is Dr. W. Henry Wilson. The total registration for 1907-08 was 117; graduates, 43. Forty-ninth session begins Sept. 21, 1908, and ends May 15, 1909.

Hering Medical College, Homeopathic, Wood and York Streets.—Organized in 1892. The first class graduated in 1893. The Dean is Dr. H. C. Allen. The total registration for 1907-08 was 58; graduates, 16.

Illinois Medical College, corner Washington Boulevard and Halsted Street.—It was organized in 1894. Classes were graduated in 1895 and in all subsequent years. The faculty consists of 38 professors and 20 lecturers and assistants, a total of 58. The course covers four years of seven months each. The fees are about \$125 each year. The Dean is Dr. B. B. Eads. The total registration for 1907-08 was 531; graduates, 30. The fourteenth session begins Sept. 2, 1908, and ends April 29, 1909.

Bennett College of Eclectic Medicine and Surgery, Fulton and Ada Streets.—Organized in 1868. The first class graduated in 1870. The faculty numbers 52. The course covers thirty weeks each. Fees for each year are \$100, with a matriculation fee, paid once, of \$5. The President is Dr. John D. Robertson. The total

registration for 1907-08 was 150; graduates, 28. The next session begins Sept. 22, 1908, and ends May 24, 1909.

College of Medicine and Surgery, Physio-Medical, 370 South Wood Street.—Organized in 1885 as the Chicago Physio-Medical Institute. The first class graduated in 1886. In 1891 the name was changed to the Chicago Physio-Medical College. In 1899 it took its present name. The Secretary is Dr. William F. Schaare. The total registration for 1907-08 was 35; graduates, 3. The next session begins Sept. 23, 1908, and ends May 15, 1909.

Jenner Medical College, a night school, located at 196 Washington Street.—Organized in 1892. Classes were graduated in 1896 and in all subsequent years. Registrar, Dr. J. Zabokrtsky. Total registration for 1907-08 was 175; graduates, 32. The Illinois State Board of Health reports that this college is not in good standing.

National Medical University, a night school, located at 531 Wells Street.—Organized in 1901 as the National Homeopathic Medical College. The first class was graduated in 1902. In 1895 the word "Homeopathic" was dropped. It took the above name in 1900. Registration for 1907-08 was 123. The Dean is Dr. L. D. Rogers. The Illinois State Board of Health reports that this school is not in good standing.

Reliance Medical College, a night school, located at Washington Boulevard and Halsted Street.—Organized in 1907. Registration for 1907-08 was 62. No graduates. The President is Dr. J. F. Burkholder. The Illinois State Board of Health reports that this school has not been placed in good standing.

MEDICAL SOCIETY NOTES.

Champaign County Medical Society has sent a petition to the Board of Trustees of the University of Illinois, expressing regret at the resignation of Dr. George T. Kemp, formerly professor of physiology in the university, and asking that the board will endeavor to secure his return.

The Stephenson County Medical Society held its annual meeting July 16 and elected the following officers: President, Dr. A. F. Kober, McConnell; vice-president, Dr. D. C. L. Mease, Freeport; secretary, Dr. J. Sheldon Clark, Freeport; censor, Dr. Smith C. Thompson, Cedarville; delegate, Dr. W. J. Rideout, and Dr. D. C. L. Mease, alternate. They are also arranging to change the fiscal year to correspond with that of the State Society.

PUBLIC HEALTH.

The State Board of Health has issued a 32-page circular on "The Care of the Baby," which is being distributed in all parts of the state. The circular, which deals with the feeding and care of infants and selections and modification of cows' milk, gives clear, succinct directions to mothers as to diet and care of the baby, the selection, modification and preparations of the food, and numerous health and comfort hints of especial value in the summer season. A chapter is also devoted to suggestions to dairymen and milk dealers, including the state laws regulating dairying.

The Department of Health of Chicago has prepared for distribution and posting throughout the districts in which the highest infant death rate is reported the following card of warning regarding the milk for babies:

FEED NO DIRTY MILK TO YOUR BABIES.

See to it that bottles or cans from which your supply is served are clean.

Milk as food for infants should be CLEAN as well as PURE. This means that you should note the condition of milk wagons and depots.

If for any reason you suspect your milk supply, bring sample in original package to the City Laboratory, fourth floor, 215 East Madison street. If the store, dairy, wagon or can is dirty, write us.

DEPARTMENT OF HEALTH, City of Chicago.

MARRIAGES.

CLINTON J. HANCOCK, M.D., Greenup, Ill., to Miss Minnie Wood, of Casey, Ill., July 29.

CLARENCE NICHOLAS McCUMBER, M.D., to Miss Iva Maud Rice, both of Lewis, Ill., June 30.

GEORGE WILLIAM CLARKE, M.D., to Miss Mabel Whitford Aylesworth, both of Roseville, Ill., July 18.

CHARLES B. DIRKS, M.D., LaGrange, Ill., to Miss Alice A. Thompson of Madison, Wis., August 1.

BERNHART L. RIESE, M.D., Chicago, Ill., to Miss Clara Freund, of Vienna, Austria, at Chicago, July 18.

MELVILLE C. K. LITTLE, M.D., East Carroll, Ill., to Miss Lucille Harrer, of Niles Center, Ill., June 27.

EDWARD MILTON BRON, M.D., Chicago, Ill., to Miss Harriet Chamberlain Drew of Brooklyn, N. Y., August 11.

DEATHS.

JOHN A. CARLSTEIN, M.D., Chicago Homeopathic Medical College, 1882; of Ravenswood, Chicago; died at Charlevoix, Mich.

GROSVENOR B. CADY, M.D., Physio-Medical College, Cincinnati, 1864; of Chicago; died in the Home for Incurables in that city, July 18.

GEORGE B. HAMLIN, M.D., Chicago Homeopathic Medical College, 1893; died at his home at Frankfort Station, Ill., after a lingering illness, July 2, aged 42.

WILLIAM ZIMMERMAN, M.D., University of Wurzburg, Germany, 1863, for many years a practitioner of Quincy, died at his home in that city, July 27, aged 67.

JOSEPH B. RANDLESON, M.D., St. Louis Medical College, 1878; died at his home in East Galesburg, Ill., from paresis, after an illness of six years, July 18, aged 73.

ALVIN G. FRITCHE, M.D., Rush Medical College, Chicago, 1901; of Black Hawk, Wis.; died at the Augustana Hospital, Chicago, July 13, five weeks after an operation for appendicitis, aged 30.

ELIJAH A. LYON, M.D., Hahnemann Medical College and Hospital of Chicago, 1880; College of Physicians and Surgeons, Chicago, 1898; of Chicago; died in Ottawa, Ill., July 14, after a short illness, aged 53.

GEORGE E. WEST, M.D., Long Island College Hospital, Brooklyn, 1885; of Rock Island, Ill.; chief of the record department and actuary of the Modern Woodmen of America; died in St. Anthony's Hospital, Rock Island, Ill., July 21, a week after an operation for appendicitis, aged 46.

FRANK CATLIN GREENE, M.D., Jefferson Medical College, 1880; University of Heidelberg, Germany, 1883; a member of the American Medical Association; president and later treasurer of Truax, Greene & Company, Chicago; died at his home in Chicago, July 27, after an illness of one year, aged 51.

==FOR SALE==

The best location for a physician on north side, Chicago. Three flat and office. \$20,000 will take back \$14,000 mortgage. Practice \$12,000 yearly. Reason for selling, ill health. Address **W. F. Petersen, 94 Wabash Ave.**

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ORIGINAL ARTICLES

THE SIGNIFICANCE OF INFLAMMATION AND ITS TREATMENT.*

S. C. STREMMEL, M.D.
MACOMB, ILL.

After reading a great deal of the modern literature treating the subject of inflammation, I am convinced that some phases of the object of this phenomenon are still not clearly understood. The old idea that existed during the days of Celsus and Galen and on down through the ages prevailed until the last few decades. Even when Cohnheim, who was the first to study inflammation in the living animal under the microscope, shed the first real light by demonstrating the emigration of leucocytes and exudation and diapedesis its insignificance was not thought of. The modern conception of inflammation, that is, that it protects, defends and regenerates the effects of injury, is the result of the researches of a great many of the most eminent investigators for several centuries. I learn from the literature on this subject that Metschnikoff was the first to teach that inflammation was a protective and defensive process. But he limited his teaching to phagocytosis and attributed the entire phenomenon of inflammation to that, which theory his critics have clearly demonstrated and proved to be erroneous. Phagocytosis is only one of the important elements that enter into the makeup of this process. The modern conception of the complete phenomenon called inflammation is a matter of current literature, consequently that will not be discussed here. Any one who does not understand the subject—and every one should know what is known about it to-day—can easily inform himself by reading the writings of such men as Durck, Stengel, Hektoen and a number of other authorities and see clearly what is almost universally accepted by all to-day. One of the best papers I have read on

* Read at the Fifty-eighth Annual Session of the Illinois State Medical Association, May 19-21, 1908.

this subject was written by Dr. Ludvig Hektoen, of Chicago, about ten years ago, entitled "Old and Modern Theories of Inflammation; Its Nature and Purpose," in which he said and thinks to-day: "The common origin, the similarity of the changes, though combined in differing proportions, and the recognizable tendency in these changes to protect and repair, justify fully the teaching that the inflammatory processes are essentially adaptive, protective and reparative." Then, at the close of the paper, he says: "It is an adaptive and self-preservative, and yet often harmful and wayward process, that requires the intervention of man. Consequently inflammation from the clinical standpoint is harmful; but from the pathologic or biologic, a struggle for self-preservation. Inflammation is the reaction of the tissues to local injuries, calling forth protective and reparative measures; an imperfect pathologic adaptation often leading to consequences that are dangerous *per se* and may defeat its purpose." As examples he cites "occlusion of the larynx in consequence of violent inflammatory reaction to fatal cerebral compression from excessive serous exudation in inflammation of the meninges," but he does not explain what would become of these cases if this reaction didn't take place. These cases have a better chance with the reaction than without it, because then they have a chance of getting surgical assistance which is often successful, while without the reaction, in my opinion, they would have no show at all. I have read several articles stating that reaction sometimes does not take place at all in fatal infections and pyemia cited as an instance. As long as the infection is in the circulatory media no reaction, so far as I know, takes place further than a destruction of the cellular elements of the blood or lymph, but as soon as the fixed tissue cells are attacked reaction always takes place if the phagocytic elements are strong enough to make the defense. In other words, if an army runs out of ammunition the fight is ended and the enemy wins the day. Whenever inflammation is "wayward and harmful," whenever it is "an imperfect pathologic adaptation and leads to consequences dangerous *per se* and defeats its own object," there is always a good reason for it whether that reason is understood or not.

The cause of the inflammation may be so overwhelmingly strong that the strongest possible fighting force could not overcome it. Then again, the opsonic index of the patient may be so low that the mildest and simplest cause can not be withstood. There are all grades and varieties between these two extremes. Inflammation is a law of Nature. The laws of Nature are never mistakes, but their administration and workings on account of the interference with their purpose of many circumstances, make it appear that Nature makes lots of mistakes. You can not go through a cornfield in the State of Illinois (and there are none better) without seeing here and there improperly developed stalks with puny ears. You can not go through the grandest forests of the world without seeing imperfections there. So it is everywhere, but germinologists and those who understand germination and subsequent growth can give a clear explanation of all these defects. So ought we to be able to explain all the shortcomings of inflammation. It is my opinion that each

variety of leucocyte, as well as the erythrocytes and the blood plasma, has a separate and distinct function to perform during this process, but I can not prove it. I can only make the statement from a theoretical standpoint and from logical deductions that to me seem clear. What the function of each element is I can not explain, neither have I been able to find out from the literature I have consulted.

A strong confirmatory evidence of the specialization of the cellular function is the great preponderance of the polymorphonuclear leucocytes in an acute inflammation and a great prevalence of the lymphocytes in the chronic forms. But of this fact I am convinced: that from the time the blood stream becomes accelerated, then slowed, and lymphocytic infiltration begins, when the polymorphonuclear leucocytes and the rest go to the seat of trouble and the exudation forms when complete stasis occurs in the blood vessels and diaporesis incomplete on up to the end of proliferation of fixed tissue cells, that means to the end of cicatrization, the purpose and aim of inflammation is always protective, defensive and reparative, that is it is never pathological, and when it defeats its aim and the patient dies from the inflammation he would die anyway from its cause. If that is true, and I believe it is, why should inflammation ever be fought and treated as a disease *per se* that should be exterminated, as is done by thousands of physicians all over the country to-day. This statement is no exaggeration, because comparatively few physicians comprehend the meaning of this most important phenomenon.

The treatment of inflammation should always be to protect it, encourage it, and assist it in its object when it is at all possible, but never increase it by spreading the infection. Let me explain clearly on this point. A patient has an infected knee-joint. If that joint is exercised, worked, massaged, etc., the inflammation will be increased, but it will be increased by spreading the infection. If there is an inflammation anywhere along the intestinal tract and peristalsis is increased the inflammation gets worse, but it does so by spreading the infection, consequently anything in the way of treatment that will increase inflammation by spreading the infection should be carefully avoided. The old teaching that the first and most important point in the treatment of inflammation is rest, holds good to-day. Some of the old writers of international reputation said many years ago that complete rest would cure most cases without anything else and that the less that was done the better for the patient. The best way to secure proper rest for an inflamed area, no matter where the inflammation is, is to put the patient to bed. This is sometimes hard to do, but if a patient understands that he will get well quicker and better he will usually accept the advice of his physician.

It is more imperative to secure absolute rest in acute inflammations than in the chronic forms, because in the acute defenses the walling off is more delicate and very easily broken down, and whenever they are destroyed a further dissemination of the infection is encouraged. I consider proper rest one of the most essential points in the successful treatment of inflammation. The Bier treatment has excited a great deal

of interest recently. It has been observed that patients with partial stenosis of the aorta, which produces passive congestion of the lungs, never develop tuberculosis. Bier teaches that hyperemia artificially produced increases and encourages the elements that fight the cause of the inflammation. I have had a very limited experience with this form of treatment. I will have more in the future because I believe the principal is right. This treatment has been widely published in detail with directions when and how to use it, consequently I will not discuss it here. I am not convinced that external applications of any kind are beneficial in the treatment of inflammation. All kinds of mixtures are still used to-day, from the mush and bread and milk poultices to the various anti-phlogistines, all of which I think are detrimental rather than beneficial, saying nothing of the discomfort of their use. I know that hot fomentations often relieve pain, so also cold applications frequently ease, but which do they assist, the infection or the inflammation? Outside of laxatives, tonics and general supportive measures, I do not believe there is much benefit derived from internal medication. When inflammation results in abscess formation and a distinct pus cavity forms, sometimes the shrewdest judgment and the most careful decision are necessary to give the patient the best treatment.

As a rule, as soon as an abscess is known to exist it should be opened and drained, providing its location is such that that can be done without subjecting the patient to a greater risk than the abscess does. In opening and draining abscesses we should have due respect and a full appreciation of the part the wall of that abscess plays in the protection of our patient. That wall should never be broken down or torn into, and always disturbed as little as possible, unless the pus cavity is limited to an organ that has been destroyed to such an extent that it must be removed. One of the most important places where the protecting wall must be carefully dealt with and the most delicate technic employed is in intraperitoneal abscesses. Hundreds and hundreds of patients have been sacrificed on account of injudicious judgment in those cases. Frequently the abscess wall consists of intestine, mesentery, omentum and posterior peritoneal wall. Whenever the inflammatory wall of such an abscess is torn into an intestine can be easily torn, or a fatal dose of imprisoned toxins may be liberated, or the infection spread to other parts of the peritoneal cavity.

I mention these common and well-known facts because there are men still operating who have no respect for the defensive and protective wall built up by the inflammation. Whenever an inflammation fills any of the cavities with an exudate to such an extent that the function of any organ is interfered with the fluid should be removed, whether it be in the pleural, pericardial, abdominal or cranial cavities. When occlusion of the larynx occurs intubate and let the inflammation have a chance to complete its work. In conclusion, I wish to say that I called attention to

this subject, not for the purpose of presenting any new thing, but to call attention and excite interest in this very important subject. Before I understood the modern conception of the significance of inflammation I was often in the dark and made some serious mistakes. It is my sincere hope that this subject will be more and more generally understood.

DISCUSSION.

Dr. Edward H. Ochsner, Chicago:—The paper to which we have just listened is one of the most scholarly efforts we have had at this session of the society, in that the author has grappled with the subject in the right way, and I think the statement that inflammation is a purely reparative process should sink into the mind of every physician. A great many men engaged in the practice of medicine look upon inflammation as an enemy rather than as a friend. The leucocyte is our friend, while the bacteria that get into our bodies are the enemies, and many practitioners have for many years been trying to excise the inflammatory area, removing the barrier between the micro-organism and the patient, between the invading host and life, and have killed thousands and thousands of patients. These patients have not died in spite of careful surgical interference, but they have died because of meddling surgery. This fact was impressed upon me about fourteen years ago when I was an interne at the Cook County Hospital, where the general practice was to attempt to cut out the inflammation. That would be all well and good if it could be done, but in the overwhelming majority of cases it can not be done, and if we attempt it we are liable to remove the barrier and kill the patient.

I believe with the essayist that rest is the first great requisite. If you secure rest for the affected part and give the inflammatory process a chance to wall off the infection the inflammatory process will win the battle almost every time.

I must differ with the essayist in regard to the use of local applications. If as he says, inflammation is a reparative process, let us do everything we can to assist this inflammation. Inflammation is practically a hyperemia, and I believe we can increase this hyperemia by various methods. One way of increasing hyperemia is by the application of heat; moist heat seems to be more effective than dry heat. For the past thirteen years I have used moist dressings consisting of saturated solutions of boric acid from 75 to 90 parts and 95 per cent. alcohol from 1 to 25 parts. A very large moist dressing of this can, with the extremity properly elevated, secure rest for the inflamed part, increase the hyperemia, decrease the venous stasis and introduces into the circulation an appreciable amount of boric acid, a substance which, while it does not destroy the pathogenic micro-organisms, does rob them of their virulence. Prof. L. Kahlenberg of the University of Wisconsin and myself have made some very interesting observations on this subject. We have found that when boric acid is thus applied to an inflamed extremity it appears in the urine in demonstrable amounts within two hours after its local application and continues to appear for a considerable time after the dressing has been removed.

In the last fourteen years I have had a great many cases of septic infection of the extremities. Among those cases which had previously been operated upon and in which the leucocyte barrier had consequently been destroyed I have found it necessary to amputate an occasional finger or toe, but so far have lost only one patient. Among those cases which came to me primarily I have never found it necessary to resort to amputation, nor have I had a single death, and I have not one single claw hand to my discredit.

Acting upon the simple proposition which the essayist has formulated, that inflammation is a reparative process, we must do everything to favor it, and as a rule pay very little attention to the micro-organism. If we give the leucocytes half a chance they will do this much more effectively than we can possibly do it.

Dr. Emil G. Beck, Chicago:—This interesting paper deals with a subject of such vast importance that we can only discuss one phase of it in the short time

at our disposal. We should differentiate between leucocytosis, which occurs in inflammation, and the reparative process which follows later. The leucocytes must be differentiated from the fibroblasts. They have an entirely different origin. The fibroblasts are furnished by the connective tissue later on, while the leucocytes travel to the seat of infection at once, and protect the area or enter into battle with the offending agent. The infiltration which takes place produces pressure in the area infected, and we must not underestimate the value of pressure as a therapeutic agent. We will find that the throwing out of lymph into the joints which are infected, into the pleural cavity that is infected, and the hardness of a beginning carbuncle, are simply Nature's methods of putting these parts to rest, and produce pressure, and here is the point I wish to make: The doctor, I believe, said we should withdraw fluid if it accumulates in a joint or in the pleural cavity. I do not agree with this entirely. It refills again in most cases, showing that Nature tries to do over again what she tried to do the first time. This should not be interfered with unless severe symptoms arise, such as extreme shortness of breath, which would interfere with life. Part of the fluid should then be removed, if not all of it. It follows that the pressure which we accomplish by the Bier treatment, by the natural hardening or infiltration of the tissues, should not be interfered with. Therefore, I would not advise cutting into a hard carbuncle. To illustrate: I had a carbuncle for two months; during that time it was incised four times, and every time it got bigger after incision and scraping. Later on I developed one near the eye. I was afraid to have it cut, and I called in a surgeon who wanted to incise it. I sent for a medical man, and he told me to apply compression, with this phrase: "The boil knew just exactly how big it would get, and then burst." This I did, and spontaneous rupture followed without leaving a scar. Since then I do not cut into a carbuncle unless there is a white point in it. That is the lesson I learned from this case. I have learned a good deal from this paper and the discussion of it.

Dr. Robert J. Christie, Quincy:—It seems to me there is still a confusion of ideas regarding these terms. Inflammation and the phenomena following it are quite interdependent. One belongs in the train of the other in natural sequence. I would take exception to what the essayist has said, and also to what Dr. Beck has just attempted to demonstrate. An original infection may vary from the irritation of a mechanical application to that of a most malignant infection. Of course, these processes should be treated in different ways by different methods. There is no one who will say that a syphilitic chancre can not be originally cured absolutely by early enucleation. This stands in opposition to what the doctor has said.

Of course, we are not called upon to discuss Dr. Beck's remarks, but it occurs to me the explanation of the cure of tuberculous peritonitis should be accepted in my judgment as explaining the thing that has been in question for many years. Is it not in opposition to what Dr. Beck contends for as the principle of treating effusion in joints, that cures the infection of tuberculosis in the peritonum by this method? It removes the intraabdominal pressure, inducing capillary congestion, and carries out Bier's principle of artificial hyperemia.

Dr. Ferd Engelbretson, Chicago:—It seems to me in this discussion we forget entirely the old teaching that in inflammation we have to consider two things. In the first place, if possible, remove the cause. No matter what we do in any kind of inflammation, until the cause or causes are removed, the inflammation will go on. In the second place, it is well recognized that inflammation, wherever it occurs, is an attempt on the part of the constitution to remove the cause or to relieve the damage, and this calls for interference in a good many cases where the constitution of the patient is not sufficiently strong to throw it off. This is well illustrated in such a simple case as a paronychia. If you leave a paronychia a few days, what will happen? The whole phalanx will be destroyed. I have seen a number of cases of that kind, where the inflammation, starting in the periosteum or distal phalanx, has been left alone, with the result that the whole phalanx has been destroyed, honeycombed, and had to be removed. I have

seen other cases where it has been attended to properly, by surgeons, the periosteum having been opened, assisting the inflammatory process in relieving the irritation; where there has been no damage done. We must remember that when an inflammation starts under a dense fascia or in closed cavities, where there is no outlet, there is certainly a call for surgical interference to let out fluid or pus. If this is not done the inflammation will spread in the direction of least resistance, and sometimes very vital organs may be interfered with, endangering the life or usefulness of the patient.

Dr. J. H. Bacon, Peoria:—It seems to me that we are using terms with entirely different meanings, and until we define our terms our discussion will not be as beneficial as it might be. We are passing through a period of change in our ideas in regard to inflammation since the work of Beers and Wright. Sufficient time has not elapsed to digest the new massive literature and work on this subject and allow us to find out the truth. I can not see why we should attempt to treat all inflammations in the same manner whether it be of the skin, fascia or periosteum, and without regard to the cause, whether it be following infection, physical or chemical trauma. I would ask the essayist how he would treat erysipelas?

Dr. F. C. Robb, Farmington:—Among the many excellent points presented by the essayist, the one that appealed to me was this thought, that inflammation is not a pathological condition. If, on the impulse of this occasion I was to frame a definition of inflammation, it would be this: A physiological reaction occurring in tissue made necessary for its protection, its reproduction, and its repair. To my mind, that definition fulfills every requirement, although it should be modified by a histological study of the phenomena presenting themselves in inflammatory reactions.

Let us take, for instance, in our study of the mesentery of the frog under the microscope. The first thought that might occur to us is this: According to the older definition of inflammation, every frog thus treated has a peritonitis. Why should that occur to us? Simply from this: We recognize what we consider a pathological condition. We consider it a pathological condition simply because we do not recognize what we see as reparative processes, or the phenomena that are made necessary to repair the injury that we have done to the point of investigation. What is the primary thing that occurs in these phenomena? An initial response followed by the other phenomena with which we are acquainted, if we study histologically those things that occur in the face of what we call inflammation.

There should be a physiological limitation of inflammation. What is the physiological limitation of inflammation? Its physiological limitation is that which is required to repair the injury that has been induced, and if the phagocytic power of the leucocytes is inadequate, what do we find? We find that Nature has provided another thing, namely, the bacteriolytic power of the leucocytes, which, if not capable mechanically, or by their chemotactic power of taking care of the pathological bacteria with which they come in contact, they die; and is their useful purpose served? It is not.

We have, then, the production of an antitoxin that destroys or limits to a certain extent the action of these pathological invaders. Now, as to the sequela following inflammation. Why do we have it? Simply because the reaction of the tissue is not and can not be sufficient to overcome the injury or the poison or whatever pathological condition which made it necessary to induce inflammation. We have an exudate. Why do we have this? Not because we have inflammation, but simply because the toxic or mechanical condition, or whatever it is, has been so great that it was impossible for the tissue to overcome the injury. These are sequences or sequela following.

Then, later, as has been referred to by Dr. Beck, we have other conditions coming on that take care of these things, that take care of the exudates, that repair the injury after the fight is over between the leucocytes and the pathological conditions, etc. With regard to effusions in joints, I was very glad to

hear what was said regarding that phase of the subject. Pressure is one of the greatest methods in overcoming exudates, if properly applied. Another point: These exudates many times act to lessen the virulency of the pathological condition which induced them. They often become antitoxic.

Dr. J. F. Cooper, Peoria:—I have been very much interested in this paper. I believe that local applications have some effect on inflammation, but they should be cold. I believe inflammations are infections always, and that germs develop much more slowly in a cold than in a warm medium. I use cold applications in erysipelas, in pneumonia, in appendicitis, where there is germ development.

Dr. Stremmel (closing the discussion):—I do not care to consume much of the time of the society in making my closing remarks. One of the speakers asked how I would treat erysipelas. At the meeting of the American Medical Association, held at Atlantic City last year, a very practical paper was read on that subject, and the idea was brought forth that bichlorid of mercury in moderately weak solutions in an acid medium was most beneficial. The idea is that erysipelas is due to an infection caused by the streptococcus erysipelatis, and the favorite location is in the lymph spaces under the skin; the germs propagate along there, and it is a nice place for them to stay, and the best treatment is that which will kill them.

DIAGNOSIS IN SPINAL AND CORD SURGERY.*

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This paper is intended to review only the essentials underlying diagnosis of surgical diseases and injuries of the spinal cord. Unlike the brain, whose several parts differ radically from each other in their functions, the spinal cord consists of a series of sections or segments superimposed one upon the other, as it were, each being similar to its neighbor above and below. It follows, therefore, that in the cord diagnosis is less complicated and mainly concerns itself with the breadth or cross-section and the height or level of the lesion. A cross-section of the cord presents tracts which conduct impulses to or from the brain and certain collections of nerve cells—the lower nerve centers—into which some fibers enter and from which others emerge.

Generally speaking, the peripheral posterior half subserves the function of sensation in its various qualities, while the anterior and lateral portions contain the motor tracts from the cerebrum and the beginning of the lower motor neurones in the anterior horns. Disease or injury, therefore, which affects primarily the anterior division of the cord gives rise to disorders of motion, and not until the posterior columns and horns have become implicated will sensory disturbances appear. Clinically this takes place in vertebral caries when the disease process extends to the cord structures, and it is also well exemplified in a fracture of the body of a vertebra which permits the sharp fractured edge to impinge

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upon the cord tissues. In both instances motor symptoms must of necessity predominate. On the other hand, when through direct or indirect violence the posterior division of the cord is injured, sensory disorders appear first and motor symptoms later. The careful observation of the sequence in which symptoms succeed each other is, therefore, of immense help in diagnosis. To understand the symptoms produced by lesions of the centrally situated portions of the cord, a short reference must be made to the physiology of the sensory tracts. To begin with, a posterior root contains the fibers carrying all qualities of sensation toward and into the cord; it is only after the same have penetrated the meninges and entered the cord that a division of labor takes place. Then we discover that some bundles conduct muscle and joint sensation, others tactile impressions, and still others pain and temperature sensations.

The fibers carrying impressions from the muscles and joints and a large portion of the fibers conducting tactile sensations from the skin are found in the posterior columns of the cord, the so-called Goll's and Burdach's columns, which have their termination in the same named nuclei in the medulla. But the fibers transmitting pain and temperature stimulation soon after entering the cord arborize about the cells at the base of the posterior horns. Their axones then cross over to the anterolateral area of the opposite side among the fibers of Gowers' tract and ascend to the optic thalamus, terminating eventually in the cortical sensory centers.

How do the foregoing facts explain the peculiar sensory phenomena of a lesion in or near the central portion of the cord? In such lesions beside the ordinary phenomena of motor paralysis which depend upon the degree of involvement of the motor tracts and anterior horn cells, we have peculiar sensory findings; while touch and muscle sensations are relatively unimpaired, pain and temperature conduction is either reduced or entirely abolished. The explanation is simple: The disease or injury being situated where the temperature and pain fibers must pass, impressions carried by them can not be transmitted to the sensorium, while the tactile, muscle and joint sensations traveling upward in the posterior columns are not at all affected. This symptom-complex has long been known as the syringomyelic sensory dissociation syndrome, but this term is no longer in use since we have found the syndrome in other conditions besides syringomyelia. In its purest form it is seen in hematomyelia and intraspinal tumor, springing from the central portions of the cord. The recognition of sensory dissociation is of great value in the differentiation of hemorrhage into the center of the cord—so-called hematomyelia, from hematorachis or hemorrhage in the membranes surrounding the cord. A knowledge of the decussation of pain and temperature fibers also helps to elucidate the Brown-Séquard syndrome often found in injury or tumor limited to one-half of the cord. This syndrome consists in the appearance soon after a trauma, or slowly in tumor, of motor paralysis on the affected and of sensory paralysis on the opposite side, but the sensory disturbance is usually limited to pain and temperature qualities. A word about the spinal reflexes. Each

spinal segment consists of one or more reflex arcs, consisting of (a) an afferent limb—the sensory fiber; (b) a center—ganglion cell in the anterior horns; and (c) the efferent limb—anterior root. As disease or injury at any level of the cord is likely to destroy the reflex arc situated therein, absence of the reflex in a certain segment points to disease at that level.

In the diagnosis of spinal injuries a knowledge of the differences between central and peripheral motor neurone affections is indispensable. According to modern teaching based upon the neurone doctrine, central neurone disease is characterized by the presence of spastic paralysis, exaggerated reflexes and Babinski phenomenon and the absence of atrophy and of electrical changes in the muscles and nerves, while peripheral neurone disease or injury manifests itself by flaccid paralysis, abolition of the deep reflexes and the altered electric response called reaction of degeneration. Bearing these points in mind we are able to diagnose paralysis from interference with those motor tracts merely passing through a certain segment, central neurone paralysis, from disease or lesion arising in the peripheral motor neurone having its origin in the anterior horns of each segment. Reasoning anatomically, we can also understand why compression of sensory roots by tumor formation, meningeal thickening, or a spicule of bone, causes the irritative symptom *pain*, and is usually followed by the symptom of destruction, namely, *anesthesia*.

Hemorrhage into the meninges, commonly a result of injury to the spinal column by fracture-dislocation or by extreme flexion, manifests itself in the sudden appearance of severe pains, radiating in character and limited to the areas of distribution from the affected segments. With the continuance of the conditions giving rise to this symptom there will probably develop sensory paralysis, anesthesia, and somewhat later motor phenomena of irritation and losses—spasms, twitchings, and finally paralysis of voluntary muscles and sphincters.

We may now discuss the means we have at our command to determine the exact level of disease or injury to the cord. As the spinal cord proper only extends to the termination of the first or upper border of the second lumbar vertebra, injuries of the spine below the second do not involve the cord. The meninges, however, reach the second or third sacral vertebra and if injured, may become inflamed. In localizing any lesion in the cord we must not forget that the nerve roots arise at a higher level than the foramina through which they leave the spinal canal. Our principal neurologic guides in determining the level of injury to the cord are (1) the state of the reflexes; (2) disorders of motion; and (3) of sensation.

1. Reflexes: When the cord has been completely severed, there is total loss of power, or paralysis of motion, below the level of damage; disappearance of the tendon reflexes and of all qualities of sensation in the same area, with sphincter paralysis. If the reflexes fail to return within a week, in any spinal trauma, we are probably dealing with a complete separation of cord structures, in which event operation will be

useless. In all incomplete lesions of the cord, on the contrary, the tendon reflexes, as a rule are much exaggerated below the lesion, while at the point of injury they are either reduced or entirely lost. It becomes, therefore, of importance to familiarize oneself with the exact location in the cord of the various reflexes; tables of which will be found in every text-book on physiology.

2. Next to reflex disturbances the position assumed by the patient in bed after an injury to the spinal cord, may aid materially in the recognition of the level of injury. I quote the following succinct account from Allen Starr: "If the sacral segments are crushed, the patient is unable to move the feet and ankles, and hence the feet lie in an extended position, assuming the position of drop-foot. The thighs and knees can be moved in this condition. If the lesion involves the lower half of the lumbar enlargement, the patient lies with the thighs drawn up, the legs flexed, and he is unable to straighten the legs voluntarily or to lift the feet. If the lesion involves the entire lumbar enlargement, the patient lies with the thighs, legs and feet extended, and can not move them. If the lesion is in the dorsal region, the lower extremities are paralyzed more or less completely, but there is no tendency to drop-foot, and the limbs offer some resistance to passive motion, the tendon reflexes being exaggerated and the muscles somewhat rigid, unless there has been a total destruction of the cord, under which circumstances the muscles are relaxed and the tendon reflexes lost. If the lesion involves the first dorsal and last cervical segments the hands will be in a position of *main en griffe*, but the elbows and shoulders can be freely moved. If the seventh cervical segment is destroyed, the forearms are partially flexed and lie upon the body with the hands pronated. Voluntary movements of the wrist are impossible, but the elbow and shoulder can be moved. If the lesion lies at the sixth cervical segment, the arms are abducted from the side, the forearms are supinated, wrists and fingers being paralyzed. If the lesion is at the fifth segment the arms lie extended and relaxed at the side of the body, all motion being impossible."

3. Of the greatest value in determining the exact seat of compression by tumor, a blood clot, or a fractured vertebra, is a correct outline of the area of anesthesia. For this purpose several schemata are in use, which vary slightly from each other, but all agree in the main points. My own preference is for Seiffer's charts, which I find perfectly adequate for all sensory examinations. Into the blank chart the various kinds of anesthesia—touch, pain, heat and cold—are entered, the hyperesthesias noted, and then compared with the table constructed by Gowers. The latter indicates with a fair degree of accuracy the spine opposite which a given segment is situated. Some authorities believe that the rule to operate four inches above the highest point of anesthesia in the back is a good one and sufficient for practical purposes.

Chipault's working rule on the relation of the spinal processes to the origin of the spinal roots is easily remembered: "In the adult, in the cervical region add one to the number of a determined process to give the number of the root which rises at this level. In the upper dorsal

region, add two; from the sixth to the eleventh dorsal process, add three; in the lower part from the eleventh and the subjacent interspinous space they correspond to the last three pairs of nerves, the twelfth dorsal process and the subjacent spaces correspond to the sacral pairs."

Piersol's recent book gives the following more exact data: "The first and second cervical roots pass out of the canal almost horizontally. The intraspinal course of the succeeding nerve roots increases gradually in obliquity so that the spinous processes of the second, third and fourth vertebra correspond approximately to the level of the third, fourth and fifth roots. The seventh cervical spine corresponds to the first dorsal nerve root. The spinous process of the fifth dorsal vertebra is on a level with the seventh dorsal nerve, and the spine of the tenth dorsal vertebra with the origin of the second lumbar nerve. The first lumbar nerve arises just below the ninth thoracic spine, the second lumbar nerve opposite the tenth dorsal spine, the third and fourth lumbar nerves opposite the eleventh spine and the fifth lumbar and the first sacral nerves between the eleventh and twelfth dorsal spines, the remaining sacral nerves opposite the first lumbar vertebra."

Conus and Cauda Lesions.—The differentiation of lesions of the conus medullaris from those of the cauda equina is of especial practical importance because of the operability, as a rule, of lesions in the latter and the hopelessness of a lesion in the former. Both are frequent enough to demand more than passing notice. Although the length from coccyx to first lumbar vertebra, the end of the cord proper, is approximately equal to the distance from the first lumbar to the seventh cervical vertebra, there are still obscure points in the differential diagnosis between conus and cauda lesions. In the following I shall give a short review of what is best known under this heading.

According to Raymond, the conus begins at the point of exit of the third sacral root from the cord and terminates at the beginning of the filum terminale. This anatomical definition has been generally accepted, as no doubt anatomical and physiological differences exist between the third sacral segment and the segments higher up.

L. Mueller's studies prove that the anterior group of large motor cells has disappeared, the pyramidal tract has ceased to exist and no more descending degeneration can be observed in the third sacral segment, while the one above still supplies the last of the peroneal musculature. Minor accepts this view and insists that the portion immediately above Raymond's conus be called epiconus. He proceeds to give the symptoms of a lesion in each substantially as follows: Disease of the conus is recognized by negative and positive signs: one of the cardinal signs and that which distinguishes it from epiconus lesions is the negative symptom of complete absence of paralysis in the lower extremities. The positive signs are paralysis of bladder, rectum, sexual function, and, of course, the existence of perfectly typical saddle-shaped anesthesia. The symptoms of disease above the conus, he says, are more difficult to differentiate from cauda disease, but only when there is a complete trans-

verse lesion in that situation. However if the lesion be limited to the central portion or to the roots emanating from it, we have the following characteristic symptoms for an epiconus lesion. There are two negative and several positive symptoms. 1. The negative symptoms are—(a). Integrity of sphincter (situated in the conus). (b). Integrity of knee-jerks (4th and higher lumbar segments). 2. Positive signs. Paralysis from sacral plexus involvement, of which the peroneal nerve is most seriously and permanently affected. Reaction of degeneration occurs early. After the subsidence of the stormy symptoms there may be step-page gait, indicating the peroneal nerve affection. In addition, there may appear weakness in the flexors on the posterior surface of the thighs, as well as weakness and atrophy of the gluteal muscles, recognized by the peculiar wobbly gait.

In both conus and epiconus lesions motor paralysis is more limited and sensory and sphincter disturbances are more extensive than in cauda lesions. In the latter the sensory disturbance conforms more to the polyneuritic type; at first the pains appear upon movement only, later they come spontaneously, and eventually they give way to complete anesthesia for all qualities of sensation. Motor paralysis in cauda disease usually appears after sensory paralysis. In a doubtful case extreme and persistent pain speaks for caudal affection, while sensory dissociation and absence of pain favor the diagnosis of conus disease. The possibility for the occurrence of conus damage from trauma to the lower portion of the spine is given in the greater vulnerability of the central portion—the conus—and the relatively greater resistance of the coarse fibers surrounding it. It goes without saying that cauda lesions are amenable to surgical treatment, while conus disease is not benefited by operation because no regeneration seems possible in the cord.

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DISCUSSION ON THE PAPERS OF DRs. GRINKER AND BORLAND.

Dr. D. W. Graham, Chicago, was asked to open the discussion on these papers. He said: I do not think the subject of spinal-cord injuries can be too often presented to general practitioners, surgeons or neurologists. The field is rather difficult, both anatomically and physiologically. There is so much of it that it is difficult to remember in all its details, and it is a field of work we always have to be studying in order to keep abreast with the knowledge that is developed from time to time. Therefore, papers like these are in order frequently in medical societies.

The case reported by Dr. Borland interested me, because I recently had one of a similar type. In that case the evidence pointed up to the fact that the injury was caused by indirect force. There was forcible extension of the head on the trunk, fracturing the sixth arch, possibly also the fifth arch. It was a question whether to operate or not, but operation was finally decided on. I should say, however, that the findings on the surface were very much the same as the Doctor has described in his case as to anesthesia, loss of all sensation below certain lines, loss of motor power, sphincter paralysis, and partial paralysis of the upper extremity. After removing the fractured lamina, it was decided that there was no bone pressure. The membrane was intact and was split open for exploration. No blood exuded, but a little serum did exude, and there were small fragments of crushed spinal cord tissue from the slit in the dura. There was nothing further attempted. The patient died a week or two later.

The question was whether there was bone pressure which could be relieved by operation, and that question presents itself in many such cases.

Dr. Arthur D. Bevan, Chicago:—I have been very much interested in the two papers that have been presented, and there are one or two points that occur to me which I should like to speak about.

First of all, I believe thoroughly in the desirability of handling these spine and brain cases jointly by the internist or the neurologist and the surgeon. There should be a division of labor. The neurologist especially, or a well-qualified internist, who is a good diagnostician, should assume a certain amount of responsibility in these cases and assume to a large extent the matter of diagnosis, not that the surgeon should be merely an instrument in the hands of the internist or neurologist, because he should have for himself certain definite opinions and not operate unless he is convinced the diagnosis warrants it. At the same time, these cases are usually not such immediate emergencies but that the joint opinion of the neurologist and surgeon can be obtained.

One point in regard to the operative technic has impressed me very much, and that is many times in doing a laminectomy one who has not had much experience may waste considerable time in endeavoring to remove the laminae by the saw or chisel or by various other instruments which are not of very much practical value. As a matter of fact, after doing twenty or more laminectomies, I have come to this conclusion, that the simplest and best method is an incision over the spine and the removal of the arch with rongeur forceps. The osteoplastic flaps are matters of surgical experimentation and are not satisfactory. The arch is of little moment and can be readily dispensed with, and should be dispensed with in the majority of cases.

Spinal-cord surgery cases naturally divide themselves under three heads—first, those of tumors; second, those of injury, and, third, such pathologic processes as tuberculosis. In traumatism of the cord I am not one of those who is in favor of immediate operation in all cases of broken back. I believe there are a certain number of cases where the lesion is so definite that there is an absolute crushing of the cord, where practically the bodies of the vertebrae are crushed and the cord cut off as if between the blades of a massive scissors. Where the injury is in the cervical region or upper dorsal region, laminectomy can be dispensed with, and it can be shown that in certain cases it is of little or no value. On the other hand, in certain other regions of the spine, as in the lumbar region, laminectomy should always be done. Injuries of the spine in the lumbar region are essentially like injuries pressing upon nerves and not upon cord tissue. Laminectomy should be done in the lumbar region, and then, of course, there is a certain class of cases midway between the two in which it is an open question, and when it is an open question I should give preference to laminectomy.

In cases of tumor of the spinal cord the diagnosis must be made, and the question is one of pathology. If the tumor is benign and not of long standing, as in a recent case which Dr. Harold N. Moyer and I had, the prognosis is excellent. A girl with multiple ossified enchondroma, one of which involved the fourth dorsal vertebra and about the size of an olive, pressing on the cord and producing complete paralysis, was operated on by laminectomy, the tumors removed by chisel, and the girl has practically recovered. She walks very well now, but she was completely paralyzed from a little below the nipple line, or about the ensiform cartilage. Of course, in the majority of cases we will find that these tumors are not benign, but malignant, and here the question of operation is one which should be duly considered, and one should be careful not to operate upon some secondary malignant lesions, as has been done a number of times.

When we come to spinal-cord surgery in connection with tuberculosis, where there are definite symptoms of pressure, pain and paralysis in tuberculosis of the spine; where, in spite of what we may do, the symptoms increase in severity, but the diagnosis is definite of tuberculosis, the open operation, with the removal of the granulation tissue and tuberculous debris, iodofornization and immediate closure is the operation of choice.

I think we are at the beginning of much of the surgery of the cord and the spine. I do not think we in this country have operated sufficiently often on these cases. I would not advocate unintelligent interference, but there certainly is a large field in cord and brain surgery which has not been as thoroughly worked up in the United States as it should be, but in order that it be done intelligently it must be done jointly by the internist, the neurologist and surgeon.

Dr. E. Mammen, Bloomington:—I desire to say a few words in reference to the question of early operation, and my observation is limited to a few cases of which I will cite one. There is a large class of these cases in which the injury consists simply of fracture of the arch, and it can be pretty well determined by the way in which the injury was received and by an examination of the case locally whether or not it is a fracture of the arch, so that in those cases there may be compression of the cord with complete paralysis of all parts below, or there may be the entrance of fragments of bone into the cord. It seems to me in all those cases operation should not be delayed too long. The case in point which I wish to cite is this:

A carpenter, who was engaged in building, fell down into a basement through a window, falling only a few feet, but sustaining an injury of the cord. Four weeks later his physician came to me for advice in the case. The accident occurred in a town thirty-five miles from Bloomington. After he had detailed the symptoms I advised that laminectomy be performed. The Doctor waited three weeks more, then sent for me to perform laminectomy. To make a long story short, laminectomy was performed. The injury was at the site of the arches of the fifth and sixth cervical vertebrae. The laminectomy disclosed a mere compression of the cord, and the injury was quite limited; yet the man had lain there paralyzed in all parts below. But after the operation there was partial restoration of sensation and partial restoration of motion in the lower extremities. However, the man succumbed to nephritis, decubitus and general infection. I can only say this: I believe if operation had been done within ten days or two weeks after the injury was received the patient would have recovered.

Dr. D'Orsay Hecht, Chicago:—I desire to express myself as in entire agreement with Dr. Bevan in his conservative attitude toward the injuries and the indications that arise for spinal surgery. I think he is quite correct in assuming that there should be a joint service between the internist or the neurologist, chiefly the latter, and the surgeon in setting as nearly as possible the indications for operative intervention.

I am at variance with the last speaker (Dr. Mammen), and I believe that this subject, as Dr. Bevan has stated, will require much more extensive study and careful exploitation in the literature before we can arrive at a very exact estimate of the merits of late versus early operative procedure. It is surely a fact that an irremediably damaged cord should not be interfered with.

Dr. Bourland has shown great familiarity with the literature and has cited the Stewart-Harte case as an instance of cord regeneration, but on approved neurologic opinion the case has ceased to attract serious consideration. The Stewart-Harte case was never one of injury to the cord, because no such an amount of regeneration as is claimed for that case could have occurred even if the cord was only slightly damaged. By some this case has come to be referred to as a "fake" case, but this attitude, reflecting, as it does, upon the integrity and sincerity of the gentleman reporting it, is too unwarranted to stand. It is, however, not too much to assert that this single, brilliant citation in the literature invariably referred to is now discredited by neurologists, or credited, if you please, only as an example of assumed regeneration of the cord.

I think it is the consensus of neurologic opinion that the spinal cord *per se* is absolutely incapable of any regeneration. Histologically, there may be the slightest proliferation of new fibers, but of functional restoration there is none. If we take into consideration the cases reported that tend to show some restoration of function, even then I believe the neurologist is inclined to be very conservative in his valuation of the damage done. Conceding a case to be amenable

to laminectomy, it should be thoroughly studied before that operation is contemplated. Even after it is proposed, one should wait two or three days, for the following good reasons: Laminectomy, of necessity, from surgical premises, changes a simple fracture, assuming we are talking of fractures of the spinal column with injury to the cord, into a compound fracture, and the element of sepsis is never so inconsiderable as to be entirely dismissed. Granting an asepsis most rigidly carried out, and none but the best antiseptic conscience, the element of infection is always to be reckoned with, and looms up large in the final estimate of total results.

As to the question of waiting to see whether the cord is damaged or not, I will say that the function of the cord may be seriously interfered with by so apparently simple a thing as a blood clot, or there may be edema of the cord without necessary invasion of the integrity of the cord substance, and we can not say but what the function of the cord may not undergo most severe impairment, although the anatomic disintegration may not be demonstrable. The master of spinal surgery—and I refer to Horsley—seems to prefer to wait two or three days before he assumes to do laminectomy, and then he is very, very careful in his prognosis, even after a laminectomy has been done under the most favorable auspices. The termination in the isolated cases referred to in this discussion shows conclusively, even when early operation is done, that the patient rapidly succumbs from debilitus, asthenia, and those other sequela which we have a right to expect.

The conservative stand now taken by neurologists is to wait, and after a thorough study of such literature as has been presented from time to time by Horsley, Tubby, Burrell, Oliver and Allen we may draw better conclusions as to the method of procedure than can be gained from isolated instances reported as brilliant successes by occasional operators. I believe that isolated case reports of successes have more than once led to false conclusions in surgical work, and, as Dr. Bevan has said, only a large collation of cases can properly decide the issue.

Dr. M. L. Harris, Chicago:—I wish to say a word or two on the conservative side of operating on spinal cord injuries. I have seen a number of these cases and have operated on several of them from the cervical region down. I believe these cases are divisible into two absolutely distinct groups—first, those in which the cord is absolutely destroyed. According to our present knowledge, these are absolutely inoperable, and we have never succeeded in doing one of them a particle of good. The other class consists of those cases in which the cord is not destroyed. Some of these have improved after operation, but it is more probable that every single one of them would have improved almost to a like degree had they not been touched. We can imagine a case where there is a spiculum of bone pressing on the cord, or where there is a clot pressing on the cord, and after removing it the condition of the patient would improve. These cases have not materialized in practice to any great degree.

So far as regeneration of the cord is concerned, there is at the present day no proof whatsoever that the cord has ever regenerated in the slightest degree. I believe that the first case—the Stewart-Harte case—was reported absolutely honestly, and we can excuse the burst of enthusiasm with which these gentlemen reported that case. I have had the pleasure of seeing the case and examining it, and I have talked with those gentlemen about the case. The case was presented to the Association of Clinical Surgery and all were given an opportunity of examining it. The gentlemen themselves are agreed that there is probably no regeneration in that cord, and that was the unanimous opinion of the members of that association who had the opportunity of examining it. I am, therefore, extremely skeptical about benefiting these patients by operating. By all means we should wait until it is determined whether the cord is absolutely destroyed or not. If it is destroyed, let the case alone, as no good will come from operating. If the cord is not entirely destroyed, some improvement will take place, and possibly that improvement may be hastened or perhaps a little bit increased by a judicious operation.

Dr. A. I. Bouffleur, Chicago:—One of the speakers has suggested that there is room for a great deal of light to be shed in regard to this whole subject. I may

be pardoned for mentioning the fact that there has been no light shed on the subject for the past fifteen years, and there is certainly as much room for more light now as at that time.

The discussion has drifted largely to the surgical features. I would like to emphasize the fact brought out by Dr. Harris that if the cord is destroyed there is no use in trying to do anything, but if the cord is not destroyed then comes the question whether or not we should operate. In other words, it is a question of diagnosis, and, therefore, Dr. Grinker's paper deserves a great deal more attention than we have given it. In fact, the whole matter is determined by the question of diagnosis, and I am sure that what he (Dr. Grinker) has presented will appear to be of much more value to us when we can read it deliberately and judge of its bearings on the various points.

There are two or three things from a surgical standpoint that are worth calling attention to further, and one is that there is quite a difference in the behavior of these cases as to whether the force has been applied directly or indirectly. Only a few years ago, when the subject was given considerable attention, a good authority at that time, Ashhurst, considered all injuries which involved the spinal cord, produced by indirect violence, as hopeless and inoperable. That, however, is not correct, because I have had two cases in which the force was so applied as to result in complete paralysis, both of which have been operated on, one as long as twelve years ago, and both have made good functional recoveries, with the loss of power in but a single group of muscles in each case. However, in those cases—and that is a point which I wish particularly to bring out—in which the cord is not completely destroyed there is a little time or a little history immediately after the injury which is of great value. It is for that reason we should inquire more definitely into the history immediately following the accident. In one case which I had the opportunity of seeing at the Alexian Brothers Hospital and operated on several years ago, there was complete paralysis of both motion and sensation at the time. The patient had been caught and rolled under a grip car, sustaining an impacted fracture of the upper lumbar vertebra, with complete paralysis, but getting at his history we were able to ascertain the fact that for a short time, an hour or two as I recall it, he was able to move one of his limbs. In that case the injury had not produced complete destruction of the cord, but the continued pressure had resulted in interruption of function. We felt warranted in operating on that case, and we did so, and in contradistinction to what Dr. Harris has said we found an impaction, with pressure, and a spiculum of bone extending clear through the cord. Notwithstanding these facts, the patient improved and in time recovered, with the single exception that his sartorius muscle on one side remained permanently paralyzed.

I recall another case in which a man was riding on a load of brick, and in stooping to go into the shed was caught and doubled up in jack-knife fashion, the injury resulting in complete paralysis at the time he was seen, but the history elicited the fact that he had some sensation for a few hours afterward. This patient was operated on, and the cord was flattened out between the body of the twelfth dorsal and the arch of the eleventh so as to completely interrupt its function. The condition was relieved, and the patient recovered, with the exception that the quadriceps was slightly weakened, so that he could not get up unless the limbs were at a right angle. If left alone he would have had permanent damage to his cord greater than he had sustained, for the reason that it was flattened out by the displaced vertebrae and persistent pressure on the cord and its nerves would in time have resulted in destruction. Shock is not a contraindication to operation in cases of cord injury any more than it is in strangulated hernia. The anesthetic is primarily a good remedy for the shock and the removal of the pressure which is constantly producing more shock is also beneficial.

There is no special difficulty in locating the lesion in spinal traumas, but as yet we have no positive means of differentiating between interruption of function caused by destruction and that produced by pressure. Since prolonged pressure may produce irreparable damage to the cord, the plain indication is to oper-

ate in all cases in which evidence of incomplete cord function persists and in those cases in which we are in doubt as to pressure or destruction existing, providing, of course, other conditions are favorable for the proper care of the patient. If pressure is the cause we can do much good; if destruction is present we can not do any harm, even death under such circumstances being a blessing.

Dr. S. C. Plummer, Chicago:—Dr. Grinker tells us that the diagnosis of these spinal injuries is easy, and I believe it is for Dr. Grinker and probably would be for us if we would give the matter sufficient study and examine our cases carefully. However, the surgeon who has a spinal case is very fortunate if a neurologist is available, and if one is he ought to call him to his aid. As a specific example of the diagnosis of spinal trouble with cord symptoms, I wish to refer briefly to a case in which Dr. Grinker made the diagnosis, and in which the diagnosis was confirmed by the operation which I performed. In this case the patient had abolition of the various kinds of sensation up to certain definite levels and abolition of motion up to certain definite levels, so that Dr. Grinker diagnosed the seat of the lesion as opposite the third dorsal vertebra, and the nature of the lesion as a tumor pressing upon the spinal cord. After exposing the dura mater and looking at it and also feeling of it, I felt that the neurologist in this instance was certainly wrong, because nothing abnormal was to be discovered. But on opening the dura mater, sure enough the diagnosis was confirmed. A small tumor was easily delivered from the dura, and the location of the tumor, as I have stated, was directly opposite the third dorsal vertebra. The tumor was of a benign character, in that the report of the pathologist shows it to be a myxofibroma. The result of the operation was considerable improvement, but far short of a complete recovery. By all means, these cases should be joint ones between the surgeon and the neurologist.

Dr. Grinker (closing the discussion on his part):—I am very thankful for the privilege of having been permitted to listen to the excellent paper of Dr. Borland and the discussion on it. I am also thankful to the Secretary and Chairman of the Section for having been selected to give the a-b-c of this subject. From the discussion of Dr. Borland's paper it becomes apparent that the elementaries must be mastered before much progress can be made in spinal surgery. I am sure Dr. Borland has spent considerable time in getting the fine diagnostic points he has brought out, as all scientific surgeons are compelled to do. I wish to express my appreciation of Dr. Bouffleur's complimentary remarks, and I want to assure Dr. Plummer that it is to his skilfully performed operation that the patient really owed her improvement.

Dr. Borland (closing the discussion):—I do not think I have anything in particular to add except to thank the gentlemen who discussed my paper and to state that I had not been in possession of the later information in reference to the Stewart-Harte case, but I am glad, indeed, to learn it was not what it was first represented to be.

FRACTURE BASIS CRANII, WITH DIASTASIS OF LEFT TEMPORO-PARIETAL ARTICULATION, ENDING IN COMPLETE RECOVERY.*

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CHICAGO.

In considering the subject of fracture basis cranii, it is impossible not to include the bony vault in our deductions, inasmuch as fully two-thirds of all fractures of the skull include both the vault and the base.

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Neither variety is of much importance, *per se*, bony union taking place very readily, with a minimum deformity, and requiring no special skill in its essential treatment. They concern us chiefly because of the injury to the brain (meninges), cranial nerves, or blood vessels which they are apt to produce. Fractures of the base are justly regarded as more serious than fractures of the vault for two reasons: First, a greater violence is necessary to fracture the base, hence there is apt to be more cerebral disturbance; second, basal fractures often open into cavities which are extremely difficult, or impossible to keep surgically clean, namely, the naso-pharynx and the ear.

Case History.—Mr. G., aged 23, married, a switchman employed by the N. W. E. in Chicago, was coupling cars in the railway yards Jan. 5, 1908. Some mistaken signal caused the motorman on the front car to advance his train just as the switchman was raising his body from a stooping to an upright position, and the bumpers of the two cars which were to have been coupled caught the lateral aspects of patient's head and compressed them suddenly and violently. The switchman fell down on the tracks, vomited almost instantly and then lost consciousness for about ten minutes. When revived by his companions he was noticed to be bleeding from both nostrils and from the left ear. He was nevertheless able to board a train, ride half a mile and walk three blocks to the Ravenswood Hospital.

Examination One Hour After Accident.—Patient is in a condition of semistupor, but able to answer questions coherently. He does not know that his head was crushed by the car bumpers, but thinks he has received an electric shock, as he remembers "seeing a flash of light" before losing consciousness. Pulse 70-72, very full and bounding; temperature 97, respirations 24; pupils somewhat dilated but reacting sluggishly to light and accommodation. There is a band of contusion $2\frac{1}{2}$ inches wide over both temporo-parietal regions; the left temporo-parietal region appears to be slightly depressed and there is a serrated bony ridge distinctly palpable in the same area, corresponding anatomically to the temporo-parietal articulation. There is no injury to the lobe of the ear or external auditory canal on either side, but blood and serum are oozing from the middle ear on the left side. There seems to be a bony mass external to the tympanum which prevents getting a view of this membrane. Blood is also flowing from both nostrils, but there is no injury to the nasal structure proper. Sphincteric control is present; there are no spasms, contractions or paralyses.

A diagnosis of fracture basis cranii with left temporo-parietal diastasis was made and patient prepared for an expectant line of treatment. The entire scalp was shaved and dressed, the nares and left ear cleansed and protected and patient put to bed.

Subsequent History.—January 5: 4 p. m., temperature 97, pulse 70, respirations 24. 5 p. m., temperature 98, pulse 70, respirations 26, profuse emesis, high tension pulse. 6 p. m., temperature 98, pulse 60, respirations 24. Bowels have moved and patient has urinated voluntarily. Complains of "hot and cold flashes" in head. 8 p. m., temperature 98, pulse 64, respirations 24. Emesis containing clots of blood (presumably swallowed after dripping into nasopharynx). 10 p. m., emesis, very restless, no spasms or twitchings. 12 p. m., temperature 96, pulse 64, respirations 24. January 6: Temperature 100, pulse 70 to 80, respirations 18 to 22. Patient quite rational, but complaining of severe pain in left side of head. Moderate edema of left eyelids; vision in left eye 75 per cent., impaired; patient can not distinguish any objects on closing right eye. No further emesis; gastrointestinal and urinary functions satisfactory.

January 7 to 9: Condition practically unchanged. Patient placed on potassium iodid, grs. xv, t. i. d., for its well-known absorptive powers. Temperature 98.2 to 100, pulse 52 to 57. Slight discharge of serum from left ear, no discharge from nares.

January 10: Complete paralysis of all branches of the left facial nerve observed. Headache requires analgesics. Severe left-sided conjunctivitis, no anesthesia of cornea or conjunctiva. Vision in left eye still impaired 75 per cent. No further discharge of serum from left ear.

January 14: Patient able to walk around hospital. Galvanization of left facial nerve began and continued daily.

January 17: Examination of the left ear reveals the presence, external to the tympanum, of a spicule of bone which occupies the upper posterior quadrant of the bony canal. This spicule is firmly attached by its base and does not apparently infringe on the tympanum. There is no impairment of hearing on the left side, and no attempt was made to remove the fragment of bone. Examination of the nasal cavities reveals the fact that there is complete destruction of the mucosa of the septum, with beginning erosion of the septal periosteum on both sides. Patient had complained, for the past week, of pain in the nose with frequent expulsion of large bloody scabs; he also has noticed total loss of sense of smell. There is no luetic history obtainable.

January 29: Keratitis of the left eye having slowly developed, I sent patient to Dr. W. H. Wilder, of Chicago, for a complete examination of the left eye. Dr. Wilder reported finding a slight grayness of the optic disc and a marked corneal opacity, the latter evidently due to external irritation resulting from inability to close the left upper eyelid. Following Dr. Wilder's suggestion, the left eye was kept firmly closed, and 5 per cent. argyrol irrigations given on alternate days. Patient still suffers from headaches and insomnia.

Improvement of the facial paralysis was steady, and by March 1 function had been completely or partially restored in all of its branches. Anosmia has persisted and will probably be permanent, but erosion of mucosa and septal periosteum have ceased under local treatment. The corneal opacity cleared up to a marked degree and patient could read large type without difficulty, although there was still a very slight haziness to vision in the left eye.

The headache and insomnia have entirely ceased. At present writing (i. e., four months after the injury) patient is mentally and physically normal, barring the anosmia and very slight corneal opacity which still exists; it is, therefore, reasonably certain that there will be no permanent mental changes such as we often find following serious cranial injuries. The diastasis of the left temporo-parietal articulation still persists and is very readily demonstrable.

Careful analysis of the symptoms and findings in this case show that we had to deal principally with a fracture of the vault involving the left temporo-parietal articulation and a fissuring fracture to the base involving: first, cribriform plate of the ethmoid (anosmia, nasal hemorrhage); second, the orbital plate of the left frontal bone (subconjunctival hemorrhage); third, the petrous portion of the temporal bone (hemorrhage from left ear, facial paralysis). It is doubtful whether the optic nerve was involved in the injury; it seems more rational to ascribe the partial disturbance of vision to transitory cerebral hyperemia or edema.

Given a case of head injury, what are the most reliable signs and symptoms by means of which we can arrive at a positive diagnosis? By subdividing the findings into those which are common to all cranial lesions and those peculiar to fractures of the base, errors should be reduced to a minimum. Given in their order of importance the signs of cranial injury are:

1. Temperature: This is subnormal during the period of shock, and gradually rises one or two degrees as reaction sets in. A persistent rise of one or two degrees, associated with prolonged unconsciousness, indi-

cates epidural hemorrhage without serious cerebral injury (Phelps). A constantly increasing temperature, with possible recessions, indicates serious involvement of cerebral tissue. The degree of elevation of temperature and its persistence will measure the amount of injury to cerebral tissue.

2. Unconsciousness: The simple fact of unconsciousness is in no sense diagnostic, as it may occur equally well with or without fracture of the vault or base, in the presence or absence of any type of intracranial hemorrhage, with general cerebral contusion, cerebral laceration or combinations of two or more of these factors. The time of occurrence of unconsciousness, its duration and relation to associated symptoms, especially temperature, are of the utmost value in arriving at an accurate diagnosis. (a) An immediate loss of consciousness indicates shock or diffused contusion or concussion of the brain. (b) Unconsciousness preceded by a lucid interval, or restored consciousness followed by loss of consciousness always indicate an intracranial hemorrhage (extra-dural). (c) Prolonged or permanent or deepening unconsciousness associated with a rising temperature indicates a severe cerebral lesion; in the absence of high temperature we should diagnose severe hemorrhage. If occurring two to three days after the trauma we should think of a possible meningitis or meningoccephalitis.

3. Respirations: Slow and shallow during period of shock. An irregular respiratory rhythm is usually associated with severe intracranial pressure (edema or hemorrhage) and an extremely infrequent respiratory act means a fatal injury to the medulla.

4. Pulse: The rapid thin pulse of primary shock is succeeded (excepting in rapidly fatal cases) by a retardation of pulse rate and increased tension, due to irritation of the vagus. A study of the pulse, therefore, merely denotes brain pressure, but does not help us to diagnose the corresponding agent or factor. In general, we may state that the quality of the pulse is of greater diagnostic value than its degree of rapidity.

5. Pupils: Statistics are totally unreliable and can be made to sustain or destroy any theory or line of argument. They may be pin-point or dilated, equal or unequal, responsive or irresponsive to light and accommodation; we may or may not observe nystagmus and ocular rotation, and ophthalmoscopic examination may reveal a choking of the optic disc. Absence of reaction is probably always of grave omen. In an analysis of 142 cases of basal fracture, Crandon and Wilson, of Boston, found a mortality of 92 per cent. in those cases having no pupillary reaction.

6. General or local muscular twitching or rigidity are due to cortical irritation of an epidural hemorrhage or to superficial laceration of brain tissue; convulsions are probably always indicative of severe brain injury.

7. Paralyses: When involving the entire voluntary musculature of the body, a fatal hemorrhage is almost always present. Monoplegias, hemiplegias, or paralyses of individual muscle-groups may be present according as pressure is made upon a limited area or upon an entire hemisphere.

8. Loss of rectal and vesical control, which should always make us suspect serious injury to brain tissue.

9. Palpable evidences of fracture of the bony vault. "Whether the wound of the bone is compound or simple, open or closed, is of comparatively little importance to-day, because of the very general recognition and employment of aseptic and antiseptic methods. It is a generally accepted fact that the skull may be simply contused and the lateral sinus ruptured, with resulting fatal hemorrhage. It is likewise true that the bone may present but a fissure, but if that fissure crosses the middle meningeal artery, or any of its branches, they may be torn across and the consequent hemorrhage and associated intracranial pressure will prove disastrous unless checked by surgical interference; on the other hand, the bone in the frontal region may be greatly damaged, literally crushed, and yet no grave symptoms arise" (Seudder). While not wishing to minimize the importance of ascertaining, if possible, the variety and extent of the bone lesion, it seems to us that too great stress is laid on the fracture itself and too little on the much more important clinical deductions obtainable by a close scrutiny of the temperature, state of mind, respirations, pulse and paralyses. Of 78 cases of meningeal hemorrhage reviewed in 1906 by Dr. F. Gregory Connell, of Salida, Colo., 32 cases, or 40 per cent., had no fracture of the bony vault.

The cardinal signs of basal fracture are:

1. Hemorrhage or escape of cerebrospinal fluid into the cavities of the eye, naso-pharynx or ear. Of 530 cases of fracture of the base found in the records of the Boston City Hospital, 75 per cent. had hemorrhage through one or more cavities. When the fissure involves the anterior fossa of the skull, blood will reach the orbit, giving rise to ecchymosis of the lids; there may also be greater tension of the eyeball upon the affected side. Bleeding from the nose indicates fracture of the cribriform plate of the ethmoid, provided injury to the nasal bones can be excluded. Case No. 163 in my elevated railway service illustrates this point very forcibly: A train conductor was found lying on the elevated tracks in a semi-unconscious condition, having evidently fallen from his car while leaning out of an open gate. When examined two hours after the accident, the following facts were noted: Temperature, 98; pulse 70, and of a high tension; the mental condition is that of mild stupor; respirations, 16; the pupils are slightly dilated, equal, and react very sluggishly; there are no paralyses or twitchings; emesis has occurred once. There is free hemorrhage from both nostrils, and there are contused wounds over the left supraorbital angle, left malar bone, left side of chin and left side of nose. Palpation of the nose reveals fractures of the nasal bones and nasal cartilage, and intranasal illumination reveals the source of hemorrhage to be extracranial. A subconjunctival ecchymosis developed on the left side within twelve hours. Patient made an uneventful recovery.

When the middle fossa is involved, including the petrous portion of the temporal bone, the tympanum may be torn and hemorrhage appear at the external auditory meatus. In involvement of the posterior fossa

there may be hemorrhage into the pharynx or the formation of an ecchymosis under the posterior pharyngeal mucosa. A hematoma may also appear at a later date in the posterior cervical region.

2. Involvement of cranial nerves.

1. Olfactory nerve: Temporary anosmia is common; permanent anosmia rare (Crandon and Wilson).

2. Optic nerve: Postmortem statistics prove that most fractures near the optic foramina tend to pass either between them or external to them through the sphenoidal fissures. Hence immediate loss of sight from basal fractures must be extremely rare. This statement is, however, difficult to prove, owing to the mental state of these patients. Whatever disturbance of vision may be present in these cases must be ascribed to pressure from hemorrhage or cerebral edema,

3. Trifacial nerve: Involvement of its ophthalmic division is not uncommon. The subsequent anesthesia of the cornea usually leads to ulceration.

4. Facial nerve: Because of its passage through the petrous portion of the temporal bone, the facial is more commonly involved than any other cranial nerve (28 per cent. of cases analysed). Paralysis is rarely noticed before the third day and may not appear for a week. All of its branches are involved. Under appropriate treatment most cases recover completely.

5. Auditory nerve: Owing to its intimate relation to the facial nerve in the internal auditory canal, both nerves are usually affected in fractures which involve the middle fossa. The exception to this rule in my case may possibly be due to the spicule of bone forced into the external auditory canal at the time of the fracture, thus liberating the auditory nerve while still impinging on the facial. Deafness may occur early and be transitory. Where the ossicles are severely damaged or where the whole inner auditory apparatus is shattered by fracture, we have permanent deafness and permanent facial paralysis.

Diagnosis: By analysing the symptoms in their order of importance, a fairly accurate diagnosis of the lesion or lesions within the cranial vault may be arrived at. Leaving out of consideration the minute pathological changes which may take place as the result of head injuries, the following questions should be answered in every case:

1. Is there definite evidence of traumatic communication between the cerebral tissues and the external atmosphere? We should never forget that many fractures of the base are minute fissures which open and close instantly.

2. Is there evidence of epidural hemorrhage (moderate temperature, lucid interval followed by unconsciousness)?

3. Is there evidence of subdural hemorrhage with its associated diffuse cerebral edema (progressive rise in temperature, prolonged or deepening unconsciousness, loss of sphincteric control, focal symptoms)?

Prognosis: Our prognosis in cases of extreme severity may sometimes be of value; in the mild and moderately severe cases it is mere guess work. Prognosis should always be extremely guarded. Many desperate cases recover; and many apparently mild cases succumb unexpectedly.

Treatment: Perforating, comminuted or depressed fractures demand early intervention, except in those cases which are manifestly moribund. In Case No. 6 of my N. W. E. series, the patient was struck by a motor car and thrown a distance of fifteen feet. He sustained a comminuted fracture of the left parietal bone, radiating to the anterior and middle fossæ. He was bleeding profusely from the middle meningeal artery, besides suffering from serious visceral lesions. At the earnest solicitation of his friends, I removed the comminuted fragments and tied the bleeding artery. Patient died within an hour. This case is merely mentioned to condemn the all too common tendency, among many surgeons, to operate on palpably hopeless cases. This should never be done unless the patient's relatives or friends are clearly given to understand the small chance of relief following operation, and, so understanding, still request it. In the Crandon and Wilson series of 530 cases already referred to, 59 were operated upon with a mortality of 53 per cent. Less discredit would be laid at the surgeons' door if only those cases were operated on in which (aside from pressure of bony fragments) extradural hemorrhage seems to be the essential part of the clinical picture. The greatest difficulty in arriving at a decision will always be encountered in the so-called mixed cases where the clinical picture points to cerebral contusion complicated with epidural hemorrhage. It is here that the surgeon's acumen and judgment will be tested to the utmost; operation will then depend upon his estimated relative importance of the lesions. When tempted to open a skull without having previously carefully observed and weighed the clinical picture of the case, it might be well for the surgeon to remember that his patient may later develop a postoperative meningitis or a hernia cerebri, where he probably would have made an uneventful recovery had his calvarium been allowed to remain intact.

All cases of head injury should be sent to a hospital with the least possible delay, or prepared for the expectant line of treatment in the surgeon's office and then put in charge of a competent nurse for at least 48 hours, better still for a week. The temperature, pulse, respirations, mental condition, and condition of the sphincters should be noted at least every two hours until operative interference becomes indicated or the case is manifestly tending toward spontaneous recovery. The expectant treatment should always include shaving of the entire scalp and cleansing of same; cleansing the ears and nares and plugging the former with sterile cotton. Where emesis is often repeated, high colonic flushings containing salines, or eroton oil dropped on the tongue will lower blood pressure through depletion. In cases showing a tendency to spontaneous recovery, but in which the clinical picture suggests the probability of a mild epidural hemorrhage or a limited cerebral contusion, moderate doses of potassium iodid should be given and maintained until complete recovery. Galvanization of paralyzed muscles should be begun as soon as the acute symptoms have disappeared, and should be kept up over a considerable period of time. By so doing we maintain muscle activity, and, to a large extent, prevent atrophy of disuse.

SUMMARY.

1. Prepare all head injuries surgically.
2. Place all such cases under the very keenest observation obtainable.
3. Do not operate in cases of diffuse cerebral contusion. A progressive disintegration of cellular structures can not be restrained by a simple relief of pressure (Phelps).
4. Never operate hurriedly without having first observed the important symptoms of your case and their trend, i.e., increasing severity or manifest tendency to spontaneous recovery.
5. Having diagnosed epidural hemorrhage, if coma deepens, temperature declines and pulse grows weaker, operate at once; if, with reaction, the clinical picture shows a tendency to remain stationary or to clear up, wait and watch. Not all blood clots need surgical removal in order to affect a complete recovery.

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TRAUMATISM OF THE BRAIN.*

J. W. MACDONALD, M.D.

AURORA.

At the present time, when the shelves of public and private libraries are groaning under the ever increasing load of new volumes and new journals, and medical schools are constantly turning out countless thousands of new and up-to-date practitioners, it would be presumptuous on my part to attempt to offer anything new or original on this important subject. I have only attempted to call to your minds the position assumed by those who speak and write with some degree of authority on traumatic injuries of the brain. As tersely stated by the late Senn, there is no department of surgery in which the general practitioner is more interested than in fractures of the skull and injuries to the brain.

According to Gurlts' statistics of the relative frequency of fractures, of 51,938 cases of fracture treated at the London Hospital, 757 or 1.45 per cent. were fractures of the skull. In the tabulated calculations of

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Von Brun's, out of 8,560 fractures, 292 or 3.4 per cent. were fractures of the skull. Recently Chudovsky compared the above figures with those he had taken from the second surgical clinic of Budapest. Out of 2,366 cases, 90 were fractures of the skull, or 3.8 per cent. The consensus of opinion seems to be that from 2 to 3 per cent. of all fractures are fractures of the skull. Sixty per cent. of all fractures of the skull occur between the ages of 20 and 40 years and they occur nine times more frequently in men than women. Fifty per cent. of the cases were caused by falls, 35 per cent. by blows or kicks and 9 per cent. by being run over. Fifty-two per cent. were fractures of the vault of the cranium and 47 per cent. fractures of the base. Fractures of the vault were simple in 32 per cent. and compound in 67 per cent. The fractures of the vault were located in the frontal bone in 44 per cent., in the parietal in 40 per cent. and only 2 per cent. in occipital bone.

Fractures of the skull are classified the same as in other bones: First, simple, compound, comminuted and complicated; second, complete and incomplete; third, direct and indirect. They may be again divided into fractures of the vault and fractures of the base, linear or fissured, punctured or depressed, etc. Fractures of the base are usually simple and linear, while those of the vault are not infrequently compound, comminuted, depressed or punctured. Both are usually caused by direct violence and while both may be complicated or non-complicated, a complication in fracture of the base is more frequent and not only occasions differences in prognosis, but in methods of diagnosis and requirements of treatment.

Senn has stated the life and well-being of the patient depends upon prompt, rational surgical treatment based on a correct diagnosis. The injury that produces the fracture frequently causes at the same time severe intracranial lesions which constitute the main reason for life-saving operations. The fracture involves either the entire thickness of the bone or may be confined to the outer or inner table. Von Bergmann in his work on injuries of the head mentions 30 cases of fracture of the inner table without any apparent injury of the external table.

We distinguish according to the character of solution of continuity of bone, the following forms: First, linear or fissured fractures. These are analagous to the crack in the plate. The bone is merely cracked without there being present any displacement. Second, comminuted or fragmented fractures, where the lines of fracture intersect so as to isolate separate particles of bone. The entire vault of the skull may be shattered into numerous fragments. Hoffman, Buchner and others have reported cases in which the skull was broken into 20, 30 or even 90 pieces. We distinguish between fractures with and fractures without depression. When the fragments of bone, whether of the entire cranial thickness or of the inner table alone are driven below their spherical level, they are spoken of as depressed fractures. Third, perforating fractures, or fractures with loss of substance occur when the fragments at the seat of penetration have been carried away leaving a defect. They are usually caused by gunshot injuries or by penetrating hooks, etc.

MECHANISM OF THE FRACTURES OF THE VAULT.

The fact should be borne in mind that the bone itself and the skull as a whole are elastic. The elasticity of the bony tissue is that quality by virtue of which these tissues resume their original form when distorted by stress or strain. The action of pressure or a blow upon a certain portion of the skull causes it to break as soon as the limit of the elasticity of the bone at this point is exceeded. If this latter does not occur, the bone returns to its normal position. When force is applied over a large surface, as in a fall from a height, or the vault is struck by a blow from a broad surface, the skull is compressed in the direction in which the force acts and lengthened or pulled apart in a direction at right angles to this. If the force is applied to the vault, the vertical diameter is shortened and the occipitofrontal and biparietal diameters are increased. Two kinds of fracture may result. Compression fracture at the point where the force is applied and a bursting fracture at those points where the skull has been lengthened and pulled asunder. This form of fracture is caused by indirect violence and at a point where the original force did not act. It was formerly thought that indirect fractures of the skull were fractures by *contre coup*, that is it was thought that the vibrations of the skull wall became concentrated on the opposite side of the head in such a way as to cause a rupture in the continuity of the bone. Bergmann, Messerer and others have proved the incorrectness of this theory.

COURSE.

A fracture of the skull is not in itself dangerous to life. Its seriousness depends on two frequent complications. First, injury to the brain and its appendages, and second, subsequent wound infection. Fractures of the base are, as a rule, more dangerous than those of the vault. The dangers of concussion of the brain, intracranial hemorrhage, cerebral pressure, contusions, wounds and rupture of the brain are common to all fractures of the skull. The dangers of purulent cellulitis, osteomyelitis, meningitis, cerebral abscess, etc., are peculiar to compound fractures with division of the soft parts down to the bone. In order to properly apply therapeutic measures we must determine whether or not the skull contents are involved in the injury.

DIAGNOSIS.

The diagnosis of fractures of the skull requires evidence of solution of continuity which may be obtained directly in cases of fractures of the vault and indirectly in fractures of the base. Compound fractures of the vault are readily determined, as the line of fracture can be easily seen and felt. It is true that very small fissures are hard to make out, but if the fissure communicates with the air, the blood can be seen to ooze from the line of fracture. Localized tenderness along the line of fracture is an important diagnostic symptom if the patient is perfectly conscious. Cerebral manifestations accompanying fractures are of little assistance in making a diagnosis. They are merely the result of

brain lesions and have nothing to do with the fractures themselves. In simple fractures, only palpation of the surface of the skull is of aid in discovering a fissure, the edge of a fracture or an area of depression. Deformity can only be appreciated by the sense of touch when it is of considerable depth. When of a mild degree, it may be masked by the thickness of the soft parts. In palpation of the skull, care should be exercised not to mistake sutures, wormian bones and depressions either congenital or due to atrophy of the bone for fractures. The existence of focal symptoms is of special diagnostic value in fractures of the base of the skull. Difficulty in examination arises frequently in connection with contusions of the soft parts which may lead to the assumption that the bone has been depressed where no fracture exists. A flat hematoma with a hard, firm base is frequently taken for fracture. The subjective symptoms are of little assistance in making a diagnosis, as the injured party is usually in no condition to answer questions. Concussion of the brain is rarely absent, but it is more frequently present where fracture of the skull does not exist.

In subcutaneous fractures, the diagnosis can only be made when depression is marked or where fragments have been broken loose. Depressed pieces of bone may be hidden beneath the temporal muscle or beneath a hematoma, consequently many such fractures of the cranial vault remain undiscovered. The welfare of the patient is seldom dependent on a positive diagnosis of subcutaneous fracture, as the treatment is only that of the complicating injuries. Formerly it was considered imperative to make incisions into the soft parts and expose the bone in order that fractures should not remain undiscovered. Senn, Cooper and others have severely criticized those surgeons who are willing to change a simple fracture into a compound for the sake of diagnosis. Operative interference is only necessary on account of lesions of the brain and not because of the fracture itself. It was formerly the custom to determine the degree of splintering of the inner table by passing probes or sounds through the fissures in the outer table. This is a dangerous practice and should be proscribed. We should bear in mind that the diagnosis is made for the purpose of treatment and that probing is not only useless, but is positively dangerous. The diagnosis of isolated fractures of the inner table is very uncertain. For therapeutic reasons, it is important to recognize displacements, depression and movable fragments. The removal of pointed splinters may be necessary if they are directed against the brain. The symptoms of fracture of the base are as indirect as those of the vault are direct. By the knowledge obtained of the process of occurrence; by the history and observation of the site of injury, the surgeon is not only able to determine the presence of fracture, but its course and extent as well. The following points in their diagnosis are important. First, the spreading of hemorrhages from the site of fracture to certain points under the skin where they appear as ecchymosis. Second, the flow of brain tissue, blood and serous fluid from those cavities adjoining the base. Third, the disturbance in function of those nerves situated at the basilar surface.

PROGNOSIS.

Prognosis in fractures on the base of the skull is always grave. Owing to the inaccessibility of the intracranial lesions to surgical treatment, and, in compound fractures, the difficulty in preventing infection through the wound from without. The danger in all fractures of the skull depends upon the location and extent of brain lesions and intracranial hemorrhages and if the fracture is compound, infection of the wound. Wound infection is prone to result disastrously if the meninges of the brain are ruptured and the infection reaches the pia mater and surface of the brain, where it spreads rapidly, and as surgical treatment has only slight control over this affection, the patient succumbs in a few days from septic leptomeningitis. If the brain wound implicates important nerve centers, death may result from paralysis of vital nerves. Again, if the wound affects less important locations, large quantities of brain tissue may be lost by the injury or later removed by the surgeon without serious consequences. Finally, as quoted by Senn, "no injuries of the skull are too extensive to be despaired of and none too slight to be ignored."

TREATMENT.

The treatment consists above all in preventing intracranial disturbances, and remedying them as far as possible in case they are already present. Simple fractures of the vault are treated by rest in bed in case there are no special cerebral symptoms. The intact covering of the skin is the best barrier to infection at the site of injury. Operative treatment of fractures of the skull is limited to cases in which it becomes necessary to elevate or remove depressed fragments or removing foreign bodies and exposing to direct treatment, grave intracranial lesions. Rest in bed with the head elevated must be enforced in all cases until the danger of complications has passed and in fractures of the base until the injury to the bone has been repaired. The primary disinfection of the wound should be the indication for surgical interference and not the fear of unfavorable results in consequence of depressed fragments. The removal of splinters or trimming the edges of the perforating fracture should be carried out in every case where it may be assumed infectious material has entered the cleft of a fracture. The removal of bone should be considered only as a part of a thorough primary disinfection. This should be the principal purpose of the surgical treatment.

In every compound fracture of the skull the examination should be preceded by shaving and disinfection of the entire scalp. The wound should be cleansed of all dirt, foreign bodies of all kinds, including hair, pieces of skin entirely or partially detached, shreds of fascia and connective tissue. Disinfection should be followed by arrest of all hemorrhage, the wound should be absolutely dry before it is closed or protected by dressings, blood should not be allowed to collect in the bottom or corners of the wound. The fracture itself should be disturbed as little as possible, especially in the case of extensive comminutive fractures. Fragments of the bone which are still connected with the

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periosteum and duramater should be left in place and only those about whose preservation there is any doubt should be removed. In case the meningeal artery is injured it should be exposed and ligated. Bergmann is very much in favor of suturing the wound at once, while other surgeons prefer not to close it at all or only partially by means of tension sutures. The more thorough the asepsis, the more justified one is in closing the wound. In case of loss of substance of the soft parts, it is advisable to cover the site of fracture with skin flaps. The wound should be dressed with the usual aseptic surgical dressings and the patient watched carefully during the further course of the treatment.

Trephining of the skull must be reserved for the following fractures: First, subcutaneous fractures, with marked depression. Second, subcutaneous fractures attended by focal symptoms. Third, all compound fractures, including punctures and gunshot fractures. Fourth, fractures compound and subcutaneous, complicated by hemorrhage from the middle meningeal artery. The treatment of fractures of the base is purely symptomatic, and resolves itself into the treatment of contusion or compression of varying degrees and consists in uncomplicated cases of rest in bed, light diet, regulation of the bowels, icecap to the head when indicated, the same as in simple fractures of the vault. For the fracture itself nothing can be done. Operative measures are impossible, as one can not reach the site of fracture.

INTRACRANIAL LESIONS.

The traumatic intracranial lesions, whether they occur independently or as complications or sequels of cranial fractures, can not be predicated on the amount of violence inflicted. Injuries received by falls upon the head from great distance or from a mere stumble upon the street may be in either event trivial or disastrous. The force in one case may be broken and its final impact minimized, and in the other fully conserved or exaggerated by attendant conditions. Intracranial lesions may be classified as hemorrhages, thrombosis of sinuses, contusions, lacerations and their sequelæ as meningeal and parenchymatous, inflammations usually of a septic character.

HEMORRHAGES.

Injuries to the intracranial blood vessels lead to either external hemorrhages, as in compound fracture, or extravasation of blood inside the cranial cavity. In the latter case the extravasation may take place between the duramater and the bone, or beneath the dura and soft coverings of the pia and arachnoid, or finally in the brain itself. The external hemorrhages or those between the dura and the bone are most commonly the result of injury to the sinus, the middle meningeal artery and occasionally the internal carotid. Wounds of the middle meningeal artery may occur in various ways. The simplest and most common form is by a sharp pointed instrument after it has penetrated the soft parts and bones of the skull or from gunshot injuries. The middle meningeal artery is the largest branch of the internal maxillary and enters the cranial cavity through the foramen spinosum and runs in the

grooves of the inner surface of the skull between the dura and bone. It divides into an anterior and posterior branch. The anterior passing to the frontal region, the posterior crosses the petrous portion of the temporal bone and reaches the occipital bone. In fractures of the skull, the artery is torn with the division of the bones or is injured by sharp edges or splinters of bone. It may also be torn without a fracture of the skull and again it may be torn at a point far from the site of fracture. The natural consequence of injury of the meningeal artery is hemorrhage. The effects produced differ according to whether the blood can escape freely or accumulates within the cranial cavity. In the former case, bright red blood can be seen pouring from the wound or on removing the depressed fragments the spurting artery may be distinctly seen. In the latter case, where no fracture exists, the blood collects between the dura and the bone, causing a hematoma. The hemorrhage continues until the artery is closed by a thrombus or until the intracranial pressure equals the blood pressure within the artery.

The symptoms are more or less referable to compression of the brain and it is only the particular location of the blood clot that determines a definite clinical picture. The symptoms of intracranial hemorrhage are due in part to intracranial pressure and part to localized pressure. The former are general symptoms consisting of disturbances of consciousness, changes of pulse and respiration. The latter are local and consist of disturbances of power of motion or of sensation, further disturbances in speech, the pupils as well as the fundus of the eye. The most important symptoms are the mental disturbances, especially the so-called free interval which is characteristic of all extensive intracranial hemorrhages. The patient feels comparatively well directly after the injury, but in a short time symptoms of compression make their appearance, which are due to an increase in the amount of hemorrhage. These symptoms consist of headache, nausea, vomiting, restlessness, lassitude, stupor, then sleep, coma, slowing of the pulse, etc. If hemiplegia occurs immediately after the injury, it is due to injury of the brain in the motor region. The treatment of injury to the middle meningeal artery consists in prompt operative measures and ligation of the artery. Injuries to the sinuses are either ruptures due to fractures of the skull or they are caused by incised punctured or gunshot wounds or penetrating splinters of bones.

The superior longitudinal and lateral sinuses are most likely to be injured on account of their location. If after injury to a sinus the blood can not escape externally, the dura is lifted away from the bone and symptoms of compression result. The latter develop much more slowly than a hemorrhage from an artery. The only sign of injury to the sinus combined with an external wound is the pouring out in a steady stream of large quantities of venous blood. The treatment consists of a strict antiseptic technic where the injury is complicated by an external wound particularly on account of purulent phlebitis. The hemorrhage can usually be controlled by packing with iodoform gauze.

Whenever intracranial accumulation of blood produces pressure symptoms and a diagnosis has been made, trephining and evacuation of the blood clots are positively indicated.

CONTUSIONS.

Contusions of the brain are caused solely by various kinds of violence and most commonly occur in connection with concussion of the brain and changes in form of the skull with or without fracture. In mild concussion there are present no structural changes in the brain. Where concussion is greater, we speak of it as contusion. The degree and extent of contusion of the brain are extremely variable. They may be merely punctate hemorrhages, contused areas the size of a walnut, or the entire lobe of the brain may be involved. The injured portion of the brain is usually situated at the point where the violence is applied to the skull, but it may be at points far removed from the site of injury. In bursting fractures the accompanying areas of contusion of the brain usually lie in the direction of the inflicting violence, being more severe at the poles of the line of force. A fall on the occipital region may cause contusion of the frontal lobe and a fall on the parietal region, a contusion of the base with or without injury to the brain at the point violence is applied.

WOUNDS.

Wounds of the brain may be divided according to the cause or force that produces them into contused, punctured or lacerated wounds. Wounds of the brain, according to von Bergmann, possess one common feature, namely, that the violence has divided all the coverings of the head, the skull and brain itself so that there is an opening from the external surface of the body to the central organ sufficiently wide to allow the escape of brain substance on the one hand and the entrance of air and infectious germs on the other. Contused wounds of the brain are most frequently found as complications of compound fractures of the skull. Punctured wounds are frequently combined with fractures of the inner table. They may also be caused by foreign bodies entering the skull through the orbit, nasal cavity or directly through the cranial bones. Lacerated wounds are usually limited to the cerebral cortex and the depth of the wound usually depends upon the keenness of the blade and the force applied in producing it. Symptoms caused by injuries to the brain consist in functional disturbances of the injured portions of the brain or localized cerebral symptoms. While in concussion, general symptoms affecting the whole brain are present, injury to a definite portion of the brain is followed by local disturbances or so-called focal symptoms which appear immediately after the injury. Very frequently contusions and wounds of the brain are combined with concussion or compression and these conditions completely obscure the symptoms which the localized lesion would have produced. Again, there may be several traumatic areas situated in different places in the cerebral cortex or medullary substance of the brain.

In order to correctly interpret the manifestations caused by localized brain lesions a knowledge of brain anatomy and physiology is absolutely necessary. It is not within the scope of this paper to enter into the minute details of cerebral localization. Reference to any of the standard works on the subject will suffice and it is only necessary to mention the more important sensory and motor areas which have been accurately mapped out. Thus first, sensory and motor areas, second, such disturbances as may affect the special senses. An interesting phenomena presents itself here in that the speech center (Broca) is not located uniformly on the same side in all individuals. It has been demonstrated that in left-handed individuals it is on the opposite side and vice versa. Hence, this peculiarity must be considered in making diagnosis of cerebral injuries. The nuclear regions of the cranial nerves are found in the crus cerebri, pons, and medulla oblongata. Hence, any disturbance of the function of these nerves must point to a pathological or traumatic condition of one or more of these areas.

TREATMENT.

Treatment of traumatism of the brain resolves itself into surgical and palliative. The surgical treatment of a lesion of the brain presupposes its diagnosis. If this is impossible, as is frequently the case, direct treatment of such a brain lesion is out of the question. The manner of treatment is of importance in only a minority of cases, since many subjects of intracranial injury are fated to succumb whatever measures are adopted for their relief. The result in the remaining cases will often directly depend upon the assiduity or discretion of the surgeon. In the majority of cases in which the issue is determined by treatment, it is met in the initial stage and by insuring restoration from shock. At a later period the question of operation may require for its determination the exercise of the highest surgical discretion and diagnostic discrimination. Only two conditions indicate operative interference: First, the removal of foreign bodies embedded in the brain; second, to prevent septic infection, or at least cut it short during its early stages. Both of these indications may exist at the same time. Regarding the first indication, the removal of a foreign body, the proof of such a condition may be very easy, very difficult or impossible. The diagnosis is difficult and frequently impossible when the presence of a foreign body in the brain can only be determined by disturbances in the brain functions. No matter how the diagnosis has been made, whether by direct inspection and palpation of the cranial wound, whether by deduction from the functional disturbances of the central organ, the clinical history or by means of the *x*-ray, the ideal treatment consists in the removal of the foreign body from the brain. A second indication which may lead to an operation in wounds of the brain is the contamination of the wound with infectious material carried from the outside by the foreign body. The removal of splinters, cleansing of the vicinity of the wound, removal of blood clots and brain fragments, trimming the lacerated and contused edges, carefully stopping of hemorrhages and drying the entire wound

and finally packing with iodoform gauze are the measures necessary in such cases and the earlier carried out, the more certainly do they promise the process of repair will go on smoothly and simply. Medical treatment consists of absolute rest in bed, icepack to the head, sedatives, thorough alimantation, elevation of the head and restriction of liquid diet.

I have a case to report, of interest only on account of the extent of the fracture, laceration of the artery, extent of the hemorrhage and the speedy recovery.

Mr. C. H., aged 31, while engaged in coupling the air on two large passenger coaches on the A. E. & C. R. R., had his head caught and crushed between the bumpers. The force was applied in the biparietal region and the skull was crushed necessarily from side to side. Blood gushed in a stream from the mouth and nose and there was a constant hemorrhage from the right ear. Dr. Vanderhoof, of Wheaton, was called and had the patient removed to a hospital in Aurora, where he arrived in about one hour after the accident. On inspection there was marked deformity of the left side of the head and on palpation the edge of the fracture could be easily mapped out. There was no injury to the soft structure, it being a simple depressed fracture.

On the right side near the parietal eminence there was marked depression and detached fragments could be easily felt. We had on this side a simple depressed comminuted fracture. The entire scalp was shaved and thoroughly disinfected and an incision was made over the site of deformity on the left side down to the bone, revealing a fracture extending from one inch above and posterior to the external angular process backward in a straight line for a distance of three and a half inches. There was fully one-half inch depression. The trephine was brought into play and a small button of bone removed and the depressed fragment elevated. There was no injury to the membranes or artery on this side and the wound was closed. On the right side an incision was made extending from the parietal eminence downward and forward, revealing a fracture extending from the above named point downward and forward to the base of the skull and then inward for a considerable distance. How far inward it was impossible to determine. The depressed area was about two inches wide at the upper part and from one-half to three-quarters of an inch at its lower part. Numerous detached fragments were present, and these and all depressed splinters were removed. The dura was torn for a considerable distance and the middle meningeal artery punctured or lacerated. The tear in the dura was carefully united with fine catgut sutures. The artery ligated, all blood clots removed and the wound dried thoroughly and packed with iodoform gauze. The scalp was sutured over the greater part of the injury, an opening being left near the lower point for drainage. A surgical dressing was applied and the patient placed in bed with the head elevated. The recovery was complete and uneventful and the patient left the hospital at the end of the third week, apparently none the worse for his experience, and has had no unfavorable symptoms since that time, which is a little over two years.

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DISCUSSION ON THE PAPERS OF DRs. M'DONALD AND TARNOWSKY.

Dr. Daniel N. Eisendrath, Chicago:—These two papers have been so carefully prepared that it would seem as though there was little left to say on this subject, but, after observing a great many cases of injuries of the skull which we have had at the Cook County Hospital, Chicago, there is one thing that has impressed

me, and it is something which does not seem to be clear in the minds of a great many practitioners, especially those who are engaged in general practice, and that is there is a condition of laceration or contusion of the brain that we must separate completely, both in our diagnosis and prognosis, from concussion and from compression. We may have cases of contusion or laceration of the brain without any of the accompanying symptoms of head injury such as we usually find in compression and concussion. These cases present themselves shortly after the injury, perhaps without any of these symptoms of unconsciousness or of any of the other focal symptoms except a focal disturbance, such as would be ordinarily due to pressure upon some cortical area of the brain. For instance, an aphasia, or a condition known as para-aphasia, is well illustrated in a case I operated on day before yesterday. The other focal symptom is a hemiplegia or a monoplegia. We do not seem to be conscious of this in our diagnoses of these brain cases, and when we have these cases of brain injury we think every case must be accompanied by symptoms immediately after the injury of the severe type. In order to show the value of what I have said, the case which I am about to report illustrates it very well.

A boy was hurt two weeks ago by having a hammer, which was playfully thrown into the air, fall, striking him in the left parietal region. It struck him close to the fronto-parietal suture, causing a small scalp wound. The boy paid very little or no attention to it, continued at his work for three days, at the end of which time he consulted a physician on account of increasing pain in the head. This pain was constantly getting worse and worse. The boy manifested symptoms such as were clearly brought out in the paper of Dr. Tarnowsky, that is, whenever you have temperature following injury of the brain it is well to suspect some intracranial mischief. This boy began to have a temperature of 102.4 and chills. I saw him for the first time on Monday morning. He was brought into the hospital in a delirious condition: his temperature was 102 and his pulse was 100, but which went as low as 80. The only focal symptom he showed was the condition known as para-aphasia, which is neither a motor aphasia nor a sensory aphasia. He could recognize objects indistinctly, and his mind would wander about other things which would have no relation to the subject we were speaking about. It was not an ordinary delirium.

After the scalp was carefully prepared, we cut down upon the skull and found the scalp wound infected. There was really no injury of the skull itself, except a shaving off of the outer table—a slight contusion. I debated the question as to whether we were justified in trephining, but, considering the gravity of the symptoms, we trephined and found an area of extensive contusion on the posterior portion of the frontal convolutions, and upon inserting an exploring needle we withdrew a tablespoonful of typical pus. This showed the importance of recognizing these contusions in cases when there is no injury to the skull.

Dr. Thomas J. Sullivan, Chicago:—Just a few words in regard to these skull injuries, as we will not have time to discuss these excellent papers at length, and, first, in regard to closing the port of entry in these injuries. In all injuries where there is a slight abrasion, no one is justified in allowing it to pass without thorough shaving, disinfecting and closing the wound with some occlusive dressing. In many of these injuries, where there is an escape of fluid from the ear, and where other symptoms do not warrant immediate operative interference, even after days, thorough attention to the ear is essential. The ear should be thoroughly washed with soap and water for a considerable time, and after that with alcohol, and then, for instance, in children, where there is an escape of serum, it can be completely stopped and an occlusive dressing made by packing the ear with iodoform gauze saturated with compound tincture of benzoin. This will prevent the escape of serum and make an antiseptic occlusive dressing, cutting off the port of entry of infection. The nasopharynx is best disposed of, where the nasal bones are fractured, by continuous irrigation of some soft, non-toxic antiseptic dressing, which will save the patient from the dangers of infection a little later on. These things considered will often protect a patient from an

infection, and later you can carry him through with or without operative interference minus the infection, and that is an important thing.

Dr. S. C. Stremmel, Macomb:—I want to endorse the statements of the last speaker very heartily. They are right. There is one criticism I wish to make on Dr. MacDonald's paper, and that is the application of ice in these cases. I can not understand what he wants to use ice for. In the first place, the only possible excuse for using it would be to check hemorrhage, but it would do harm otherwise. It would interfere with the early reaction that takes place after the production of an injury anywhere, and that is the first process of inflammation, the migration, the exudation that takes place there should not be interfered with, because it interferes with repair afterward. In the more serious injuries it is different, but in the milder injuries that process should not be interfered with. It is a protective and a reparative process, and when interfered with early it causes injury.

Dr. H. C. Fairbrother, East St. Louis:—I wish to say a word or two in regard to Dr. Tarnowsky's paper. One can not draw definite conclusions with regard to fracture of the base from the picture complex presented by him. The picture complex in a case of fracture of the base of the skull is variable. It is not the same in any two cases, depending upon the site of the fracture, the amount of hemorrhage and the crushing force producing the fracture, so that we have no definite picture of symptoms pointing to certain fractures of the base of the skull, and the only certainty of arriving at a conclusion is by postmortem examinations in fatal cases, and in this case, I understand, there was no such examination, and only a guess as to the point of fracture, if there was a fracture at all.

With regard to elevation and temperature being caused by hemorrhage and pressure, I would rather ascribe it to infection, especially if there is chill and elevation of temperature after severe head injuries. We usually refer it to infection, meningeal or cerebral. There is frequently, though, a great alteration in the temperature-pulse ratio and in the pulse-respiration ratio, as spoken of in this case. The slow pulse and a high temperature are common. In all brain lesions, whether from hemorrhage or shock, hemorrhage from fracture, or what not, there may be following the injury alteration in the temperature-pulse ratio, and especially in the respiration-pulse ratio.

With regard to operative procedures, in fracture of the skull attended with unconsciousness, certainly an exploratory operation is desirable, and, as there is great danger from the general shock and severe injury, an operation could hardly do any damage under such circumstances, and always, where there are any symptoms of depression whatever, or certain symptoms of pressure from hemorrhage, I believe immediate operation is demanded.

Dr. MacDonald (closing the discussion on his part):—Just a word or two in answer to Dr. Stremmel with regard to the application of ice to the head. I stated in my paper that an ice-cap may be used when indicated only, and then not applied to the site of the fracture, as it would delay repair.

A point which especially occurred to me is to delay operation until sufficient time has been taken to make a diagnosis. Of course, where there is compression or indications of hemorrhage, then an operation is called for, but to operate on a simple fracture more damage is done than was produced by the original injury. I only mentioned the ice-cap in those cases where it is indicated, and then not applied at the site of injury.

Dr. Tarnowsky (closing the discussion):—I am very glad my paper has elicited such a free discussion and also some condemnation.

Dr. Eisendrath has called our attention to the fact that it is always important to separate laceration of brain tissue from here contusion and concussion of brain tissue. That is why I advised having all such cases placed under the keenest observation for at least a period of one week, because in these cases of laceration of brain tissue, as Dr. Eisendrath has so clearly pointed out, we have a

comparatively free interval, with few or no symptoms, except some mild focal symptoms, but later on a rise in temperature indicative of severe cerebral laceration.

Regarding the care of the cavities which may communicate with the cerebrum in cases of fracture of the base, I would take exception to one statement, and that is packing the ear with iodoform gauze in order to prevent the escape of cerebrospinal fluid. I question whether it is advisable to prevent the escape of cerebrospinal fluid in these cases. It is important, of course, to prevent infection from traveling from without inward, but are we not relieving pressure by allowing the escape of cerebrospinal fluid, provided we prevent infection from without? It seems to me, by thoroughly cleansing the ear, making it as aseptic as possible, and then closing it with pledgets of sterile cotton, we prevent infection from without and at the same time we do not stop drainage.

The last speaker (Dr. Fairbrother) questioned the diagnosis of this case. I would like him to explain how we can have a palpable, demonstrable diastasis of the temporo-parietal articulation, which is practically a fracture—how we can have a complete paralysis of the facial nerve without a paralysis of the auditory nerve on the same side? Supposing we had had deafness and facial paralysis on the same side, we might ascribe it to pressure within the calvarium from a hemorrhage. It seems to me that where we have paralysis of one nerve which is in intimate connection with another nerve, and one escapes, while the other is involved, a diagnosis of fracture of the petrous portion of the temporal bone is no longer guess work. Then, too, where did the cerebrospinal fluid come from? I do not believe this was guess work. The case was passed on by other men besides myself, and I think the diagnosis of fracture of the base and a diagnosis of temporo-parietal diastasis were positive and not guess work.

SOME OBSERVATIONS ON OPHTHALMIA NEONATORUM.*

WILLIS O. NANCE, M.D.

CHICAGO.

The observations recorded in this paper are the result, for the most part, of personal experience in the management of a rather large number of cases of purulent conjunctivitis in the newly-born. The larger proportion have been observed during a term of service at the Illinois Charitable Eye and Ear Infirmary. Some of the cases have been private patients who have been cared for in their homes, and a few have been seen but once or twice in consultation with other oculists. Unfortunately, in many of the cases, seen previously to two years ago, complete records giving exact time from birth that the disease was first observed, the bacteriologic findings, the treatment employed, whether any prophylactic method had been instituted, the time required for a cure, etc., are not available. During the past two year period, and comprising a series of upwards of thirty cases, such data has been secured.

The results of my observations in the main do not materially differ from those of others, so far as I know, but the experience gained has tended to impress upon my mind certain practical points in the management of this class of cases, and I record them here for what they may be worth.

* Read at the Fifty eighth Annual Session of the Illinois State Medical Society, May 19-21, 1908.

In the first place, I desire to emphasize the value of Credé's method of prophylaxis. In the present day and age it would hardly seem necessary to suggest to the profession the undoubted efficacy of a procedure which, backed by statistics of incontestable accuracy, has been the means of saving so many infants' eyes from destruction. Yet the fact remains that quite a substantial proportion of medical practitioners do not employ it as routine. Two reasons are frequently assigned for the neglect—one of which is sentimental and the other the inconvenience of having always at hand freshly prepared and clear solutions of the silver. The first objection gained a foothold in the minds of medical men at a time when ophthalmia neonatorum and gonorrhœal infection were considered classically inseparable. This latter, as is now quite generally known, is positively erroneous. The second objection should have no bearing in the mind of the conscientious physician.

The details of the toilette of the newly born infant must be left to some one more qualified to speak than myself. It is evident that immediately after birth the eyes should be cleansed with some bland solution previous to the instillation of the drops. That the instillation of a drop of silver solution in the eye of the new born babe will invariably prevent the disease is not borne out by clinical experience. In two of my cases—one of a decidedly virulent nature in which total destruction of vision of one eye resulted—did the prophylactic method fail to accomplish its object. Yet in the vast majority of instances where ophthalmia developed no prophylactic measures were instituted. In rare instances intrauterine ophthalmia is encountered. Such a case was met with by the writer and reported in detail in the *Journal of Ophthalmology and Oto-Laryngology*, April, 1907.

The action of the silver in the conjunctival sac is not so much germicidal as it is to render the conjunctiva a poor medium for the propagation of pathogenic micro-organisms. For this purpose, it seems to the writer that a strength of one-half of that recommended by Credé might be almost equally as efficacious and serve the purpose, and this strength is sufficiently unirritating to overcome any objection that might be urged on this account. In reality, however, I believe that the objections which have been urged against the use of silver in this connection on account of its irritating qualities are of little importance. The writer once had the opportunity of seeing an infant whose eyes, by instructions of an ignorant physician, had been freely irrigated with a 2 per cent. solution of silver nitrate regularly every two hours for a period of more than forty-eight hours, and still the baby recovered with reasonably clear cornea. Cases of reported injury to the eyes by the silver prophylactic treatment have, in most instances, if not in all, been caused by the use of a stronger solution than that recommended by Credé.

The bacteriology of the disease is of interest and of much practical importance. The idea that ophthalmia neonatorum and gonorrhœal ophthalmia are always one and the same does not by any means hold good in the light of modern thought and investigation. While the gonococcus

is present in a majority of cases, it is safe to say that in one case in every three its presence can not be demonstrated. This finding has been proven in the series quoted in this paper. The pneumococcus was the offending micro-organism in slightly more than 10 per cent. of the cases, the staphylococcus in about as many, and the Morax-Axenfeld diplobacillus, and the bacillus coli were demonstrated in the remainder in about equal numbers. The practical bearing of these figures gives prominence to certain facts, viz., that it is not necessary to have a gonorrhoeally infected vagina in order to have a case of ophthalmia neonatorum develop, hence the advisability and necessity of employing prophylactic methods in cases of labor, even where it is considered almost certain that the mother is not infected. Again, the nature and course of the disease when produced by certain micro-organisms differs so materially that it is of decided clinical value to the physician to be familiar with the particular bacteria with which he has to deal. For instance, in true gonorrhoeal ophthalmia neonatorum, we may always look for a more severe and protracted course of disease than in pneumococcal, streptococcal or diplobacillary ophthalmia, and we should accordingly redouble our efforts in the case of the former to effect favorable results, and in the latter to modify our line of treatment as the bacteriologic finding would suggest. It is recognized, and the writer has observed it clinically, that the conjunctivitis produced by the staphylococcus albus is almost invariably milder than that in which the staphylococcus aureus is the etiologic micro-organism.

The clinical appearance of the disease other than that denoted by the degree of severity may differ somewhat, depending upon what micro-organism is the cause of the inflammation. For instance, I recall one case in which the skin of the lid margin at the outer angle of the eyes was reddened and exoriated as one sees it in the typical diplobacillary conjunctivitis of adults. In this case the ordinary treatment of ophthalmia neonatorum was supplanted by the use of zinc solutions with eminent satisfaction. Examination demonstrated diplobacilli associated with staphylococci.

Regarding the treatment of ophthalmia neonatorum, page upon page has been written. Silver nitrate has been the faithful remedial sheet-anchor in this disease since von Graefe employed and recommended it a half century ago. To-day, in the opinion of the writer, it stands without an equal and is the remedy *par excellence* upon which to depend. This opinion has been formed by personal experience; I am aware that it is at variance with that of many other observers.

Of the so-called modified silver preparations, argyrol, in the hands of the writer, has given the best results and its free use in a strength of 20 per cent. I consider a valuable adjunct to the classical silver nitrate treatment. Frequent and copious irrigations of the eyes with some sterile or weakly disinfectant solution is imperative in the intelligent treatment of the disease. In my experience irrigations are usually poorly and in-

effectually performed when soaked pledgets of cotton or even eye-droppers are employed for the purpose. The method I am in the habit of employing is to use a fountain syringe with a specially prepared glass tip made absolutely smooth, that may, if necessity demands, be introduced directly into the conjunctival sac. A large amount of the solution should be used, usually from one to two quarts at each irrigation. When the irrigation is done in the manner described it is practically certain that every particle and shred of mucus or pus is removed; by other methods this is by no means certain. The frequency of employing these copious irrigations depends naturally upon the amount of discharge and the general appearance of the diseased eye. In the average case it should be done three times a day. The solution employed may be permanganate of potash, 1 to 15,000, boric acid, or even sterile water. I am in the habit of using the former. The benefit derived comes not so much from the antiseptic value of the solution as from the mechanical cleansing. The infant is best held on its back by the nurse, the head on or between her knees, a piece of rubber sheeting or oil-cloth being used to protect the clothing.

When the lids are markedly swollen, rendering free irrigation difficult or impossible, the palpebral fissure should be widened by a free canthotomy. In every instance in which the writer has performed this little operation he has been rewarded by marked improvement in the ocular disease. The discharge must not be allowed to accumulate in the conjunctival sac, and it is little short of criminal to sit idly by, wasting precious time in such cases, when the mechanical interference to free drainage can be so readily and satisfactorily relieved.

Warm applications are to be preferred to cold. Their effect is to stimulate vascular and lymphatic circulation to the end of enabling the leucocytes to make a better fight against the pathogenic germs of the disease. Cold or iced pads recommended by most writers, and which I have employed myself in many cases, I have learned to discard. Their negative action on the circulation and their depressing effect on the cornea I believe more than counterbalances any good effect they may possess in lessening the virulence of the micro-organisms or in preventing their multiplication. The applications are best made by means of small squares of gauze which must be light in order not to interfere with drainage of the eye. For this reason anything in the nature of a poultice or dressing is positively contraindicated.

A point that must not be lost sight of in the management of ophthalmia neonatorum is that the corneal complication, when it occurs, is what destroys the sight; for this reason careful and frequent watch must be kept on this structure, and if haziness develops or an ulcer appears while the case is under treatment it is an indication that the mode of treatment is either illy chosen or that it is being ineffectually carried out. Treacher Collins says that a case of infantile ophthalmia when first seen should

be in its worst stage, and that it begins to improve immediately under treatment.

The physician who has a case of purulent conjunctivitis develop in one of his infantile patients, especially if he employed Credé's method of prophylaxis, is unfortunatè; yet if he recognizes the disease early and does not lose an hour in instituting intelligent treatment, he need have little fear of an unfavorable outcome of the disease. It is one of the most pitiable and cruel incidents of medical practice, and one destined to touch the sympathetic cords of the most hardened heart, to contemplate the conditions which too plainly present themselves in the case of neglected ophthalmia in the newborn infant. Babies not yet a month old, indeed, in some instances, not yet two weeks born, with cornea perforated and suppurating, eyelids frightfully swollen and red, thick creamy pus oozing through palpebral apertures of such minute proportions as to be of practically no service in ridding the eye of its effete contents, the infant destined to go through life, should he be so unfortunate as to endure, groping his way in hopeless darkness, such is the picture to which I allude. And such a picture is by no means rare or overdrawn. I have seen it many more times than once. Can the canvas be spared such a besmirching and the victim a life of endless gloom? In many instances—aye, in a vast majority of instances—yes.

Let us begin our treatment with a more general adoption of the silver prophylaxis method of Credé. Let us appreciate the fact that ophthalmia neonatorum is not always of gonorrhœal origin, and that the demonstration of a prophylactic measure is no perverse reflection upon any member of the family in which it is employed. Let us not only look with suspicion upon the reddened eye of the new-born child, but let us lose no time in instituting vigorous, intelligent and painstaking treatment. If the disease increases in severity under our management, let us not waste precious time in unnecessary delay until the little one's eyes are beyond hope of reparation, but let us recognize the imperative necessity of consultation and act upon its suggestion. By acting early, intelligently and conscientiously in the conduct of our infantile charges, we will do much toward reducing the now too large proportion of blindness due to this disease.

100 State Street.

DISCUSSION.

DR. JESSE P. SIMPSON, of Palmer: Dr. Nance drew a graphic picture of gonorrhœal ophthalmia neonatorum. I wonder if the picture would not be much more sad were we to add measles as a further affliction. It was my experience to have such a case. Had directed the instillation of a 2 per cent. silver nitrate solution into the eyes once per day, in addition to the frequent use of a milder collyrium, when after about a week both mother and infant developed measles. Then, even under the nitrate treatment, the chemosis became greater, and pus formation increased. We then began using the silver nitrate both morning and evening, and by that means saved both eyes of the child. That was before the days of argyrol.

HOSPITAL CONSTRUCTION.*

A. J. OCHSNER, M.D.

CHICAGO.

In all parts of the country new hospitals are being constructed in great numbers. It is important that the money expended for this purpose should result in suitable structures for the care of the sick, containing the greatest possible amount of proper facilities for the money expended. It is of equal importance to have these buildings so planned that the greatest number of patients can receive the best possible care for a given sum of money spent in the maintenance of the hospital after it has been constructed. The following important features will serve to secure these results:

The first element in economy can be obtained by the construction of a compact building. The second element lies in the central location of utilities, because of the reduction in labor required in conducting the institution. The third element of economy can be secured by building many-storied hospitals. This feature should be discussed first, because it provides excellent facilities for developing the other two elements. In constructing any building one must look on the following parts as units of cost of construction:

The foundation and the basement represent one unit of cost; each story represents an additional unit, and the roof and garret represent one unit. This can readily be illustrated in the following manner: In constructing a six-story hospital the cost of construction represents one unit for the foundation, one for the roof and garret and one for each story, making eight units in all. In constructing six one-storied pavilions, on the other hand, each pavilion would represent one unit of cost for the basement, one unit for the first story and one for the roof and garret, making eighteen units of cost in all. In other words, the same facilities could be secured in the six-storied building at eight units of cost that would require eighteen units of cost were six one-storied pavilions constructed. This, however, is true only of hospitals in which each pavilion contains at least twenty beds.

The principal features which tend toward economy in hospital construction in the form of a many-storied pavilion extending north and south, with a central hall with rooms or wards arranged on either side, are the concentration of the conveniences in the middle portion of the building. The elevator, the nurses' service room and diet kitchen, the bath and toilet rooms are all located in the center of the building, where they are convenient, so that the distance the nurse must travel in going from each patient is reduced to a minimum, and, although these conveniences provide every facility, they occupy only a comparatively small portion of the building, leaving a very large percentage of space for the housing of the patients, which, of course, serves as a great economy.

* Abstract of paper read before the Chicago Medical Society, June 10, 1908. Illustrated by stereopticon slides.

By superimposing these bath and service rooms the expense of installing the plumbing will be reduced to a minimum. It will be seen that the diet kitchen on each floor is directly underneath the general kitchen and special diet kitchen for the entire hospital. This makes it possible to serve all food, hot and palatable, at a very small expense of labor. The distance which the food must be carried from the general kitchen to the most distant floor does not exceed thirty feet.

The elevator can be so placed that all the noise from this source will be eliminated and each floor will be an absolutely independent unit, in no way disturbing the patients on the other floors. The hall in this building must, of course, extend from north to south in order to be exposed to the noonday sun, while every room and ward is exposed to the sun during one-half of the day. A slight deviation to the northeast or northwest is perfectly satisfactory with this form of construction. It may be well to compare these plans with another plan in which the hall extends from east to west and is placed along the north wall. This form of a pavilion has been frequently chosen because it gives every room a south exposure for sunlight. When one bears in mind the elevation of the sun during the forenoon and afternoon hours, as compared to the noon hours, it becomes plain at once that the total amount of sunning is far greater for all parts of a room facing either east or west than in a room in which the windows face south.

A comparison of these two types will show that in the building with the central hall the amount of utility is nearly double that in the other form when measured by the cost of construction. Moreover, the distance it is necessary for the nurses to travel, the amount of hall space to be kept clean, the number of windows to wash, the amount of outer wall area and roof to be kept in repair are all increased greatly in a building constructed on the general plan last described when measured by the amount of utility obtained.

The U-shaped building contains a great amount of utility for the cost of construction, and its concentrated form insures great convenience and at the same time conditions which will make its conduct most economical. Here, again, food can easily be delivered to the patients in all wards and rooms of the building, hot, palatable, wholesome, because the distance from the kitchen in the top story to the portion of the building farthest removed is relatively very slight. All provisions for carrying food a great distance after it leaves the kitchen are bad, whether this be done in heated carts or in any other way. The result is similar to a dinner which has been kept hot in the kitchen for some time after it is ready to serve.

It is best to place this building so that the parallel wings extend from northwest to southeast, because this insures sunlight for every window in the building during the entire year at the same time each day. It is proper, however, in case the location demands this, to have these wings extend from north to south, with open court facing south, because the end rooms along the north wall may be used largely for utility rooms, operating rooms, supply rooms and room with dark curtains for eye

patients; and the elevators must be placed on this side. Moreover, from March 21 to September 21 even this wall is exposed to sunlight early in the morning and late in the afternoon.

If one considers only the three items of increase in expense of heating, cleaning and repairing, one must conclude that from the standpoint of economy in running expenses the many-storied pavilion plan is greatly to be preferred to the one or two-storied pavilion plan. This would, of course, not apply to hospitals in the tropics, but it would apply to those constructed in almost all parts of the United States and Canada. Economy of construction would, of course, not be permissible were the resulting structure inferior in its quality of care to the patients. As a matter of fact, quite the opposite is the case. The patients can be perfectly free from danger from fire. They can be readily isolated from noises. They are near the head nurse and the floor nurses. They are near the service and bath rooms. They are near the kitchen and still entirely away from the odors of cooking. Heating, lighting and ventilation can be arranged in an ideal manner. It is possible to place such a building at a considerable distance back from the street and to screen it from the latter by planting shrubbery along the edges of the grounds.

It has been repeatedly demonstrated that the higher floors of any building contain less street dust and consequently a relatively smaller number of micro-organisms in the air than the lower floors. The same is true of flies; only rarely are these found in the higher stories of a building. If forced ventilation is employed it is possible to extend the air shaft intake above the roof of a many-storied building at a slight expense; hence, all of the air supply from this source can be obtained from an elevation which will insure relatively pure air. Moreover, natural ventilation, which must be generally employed in the summer months in every part of the United States, is always better higher up, because there is less obstruction from surrounding buildings. Another element of economy depends on the possibility to deliver heat in all parts of the building with very little loss on the way.

DISCUSSION ON THE PAPER OF DR. A. J. OCHSNER.

Dr. Carl O. Young:—This paper is too valuable and interesting to pass without discussion, especially in view of the fact that hospitals are being built in this city and vicinity, and those of us who have had personal experience in dealing with hospital architects have had to learn sad lessons with reference to the little thought they give to hospital construction, and we are indebted to Dr. Ochsner for calling our attention to this matter some time ago. I certainly have profited very much from a paper he wrote on this subject some years ago, and I am especially impressed with this form of hospital he has advanced, for the reason that the units of utility are brought close together, so that maintenance will be reduced to a minimum. It is good and well when we have other people's money to deal with and they will supply enough of it to build hospitals; yet when it comes to supplying the moneys ourselves, then as a practical matter we have to consider the cost of erection, and more especially the cost of maintenance. A hospital built on the plan thrown before us on the screen, with central hall, and wards off to each side, with the elevators and stairs as central as possible, especially bathrooms crowded away as shown in the chart, is the most practical form of hospital construction we can make use of in a city.

We get light, and we get one thing more that is very important, and that is, good ventilation. The air currents in these parts are mostly north and south, etc., and with a hospital built, so that the corridors run north and south and are open so that there is nothing to obstruct the current of air at either end, it helps to keep the hospital well ventilated. Further, it can be so arranged that the bathrooms will open in or the doors communicate with the wards from the bathrooms, so that a nurse will not need to go through the corridors with a bedpan, thus obviating the odors from fecal matter being carried through the corridors and spread throughout the hospital. This hospital, with a central hall in a north-south direction, will permit of good ventilation; it will be well lighted, and there will be as little hospital odor in such a place as can be.

Dr. S. C. Stremmel, of Macomb, Illinois:—I have built a hospital on the line Dr. Ochsner has suggested. It cost \$17,500 to start with, and then an additional ten thousand dollars later, but it has all modern conveniences.

The suggestions given by Dr. Ochsner should be published in our medical journals, as there are a great many doctors all over the country who are building hospitals, and they do not know very much about their construction. They do not go into the detail of construction, and, as has been said, we learn by sad experience sometimes by not knowing about these things. This paper is timely and should be widely published.

Dr. D. A. K. Steele:—I have been much interested in seeing the views Dr. Ochsner has thrown on the screen. I am quite familiar with the contents of his previous paper on hospital construction. I have had some little experience in this regard, as I have put up three hospitals in Chicago, the last one, the University Hospital, having been completed and built on the lines laid down by Dr. Ochsner, showing a central hall, with rooms on either side of the wide hall. Ventilation is secured through a corridor ten feet in width, and the utilities provided for in the center of a five-story building, almost exactly as shown to us to-night. An essential thing in a modern hospital is to provide sufficient air space and conveniences at a minimum cost per bed, particularly for private hospitals, where we have to depend on the maintenance of the hospital from the fees received from patients, and where no donations are received. It is a curious thing, but nevertheless true, that the cost per bed in different hospitals in this city, that is, some of the larger hospitals, which receive their money from the public largely, is about three times as large as that of a hospital that is built by private individuals. They put in a great many extras or unnecessary things perhaps on the exterior of the building to make it architecturally beautiful, but do not in any way add to the facilities in caring for the sick in an economical and scientific manner. In building the University Hospital on the west side, we were guided entirely by the best method of giving air space, the best sunlight to patients in a thoroughly modern way in every part of the building, and the plans were already fully sketched out and the location of every room mapped out before we went to the architects. We did not ask the architects to draw us plans for this hospital, but simply asked them to make us working plans and from our sketches the hospital was built. The result was that we did not have to change a single door, a window, or room from the original drawings. And another thing that was very satisfactory is that we had no extras. We knew precisely what we wanted in the hospital, and therefore we were not confronted with the difficulty at the conclusion of the building of the hospital of finding that it cost about 25 or 30 per cent. more money than we started out with. That is a point that doctors who contemplate building hospitals should remember. It is essential to know the kind of building we want, and then you do not need to be guided by architects. But if as physicians we tell architects the kind of building that is necessary for the proper care of the sick, then we will get just what we want, and we will not pay for a lot of things we do not need in a hospital. In brief, my personal experience bears out the value of what Dr. Ochsner has said, regarding hospital construction.

Dr. A. Belcham Keyes:—I feel that in the construction of hospitals not enough attention is given to proper ventilation. The air current in the average closed room is caused by the motion of old air being heated and reheated by the radiator. Steam heat, as used in Europe, means pure air directly from the outside passing through the covered radiator; while steam heat in this country usually means reheating repeatedly a lot of old air. This is as true in hospitals as in private dwellings. I like the old hot air furnace, and am afraid of steam-heated places. Another of the points is the window, it is so heavy and often so difficult to raise that the airing is neglected; every hospital window should be arranged so that air can be easily let into a room in the quantity desired and with as little physical effort as possible on the part of the nurse or patient. Transoms above are often difficult to manage on account of the blinds and curtains being in the way.

This subject is a timely one, and we are greatly indebted to Dr. Ochsner for his contributions in the past, as I know we shall be in the future.

Dr. Fenton B. Truck:—I have been very much interested in Dr. Ochsner's remarks on the construction of hospitals, and particularly I would suggest the application of what is known as the roof garden idea. They are adopting this principle now in building hospitals. They have also adopted a method of filtering air and of protecting the filtered air from contamination. Of course, the value of open air treatment is well-known and the utilization of the roof garden principle in certain cases is valuable.

Along with ideas of construction of hospitals, measures for giving hydrotherapy and carrying out modern methods of dietetics are quite important to consider. We should likewise think of the advance that is being made in diet kitchens. Again, physical and mechanical therapeutics as now used should be borne in mind; with which Dr. Ochsner is undoubtedly familiar. These should be departments in our hospitals, but they are not always thought of, but I mention them in this connection as being worthy of consideration in hospital construction.

Dr. C. E. M. Fischer:—One part of a hospital, usually considered of small consequence and often entirely overlooked, is the laboratory. Laboratories are coming into more general use in hospitals, and yet in visiting the more modern institutions, one will find these laboratories so arranged that when he enters he has olfactory evidence that somebody has been working in there. In commercial laboratories, it is usually the rule to put them on the highest floor of the building, and then provide for good ventilation by means of hoods, etc. In hospitals, however, the general rule is to put the laboratories in some corner where there is all kinds of rubbish.

Because of the inadequate circulation of air in these places, one commonly finds an accumulation of smells from the bromin, the numerous samples of boiled urine and other odor-producing materials.

Undoubtedly no small part of the "characteristic hospital smell" is due to the fragrance of its pathological bouquets.

Dr. Ochsner (closing the discussion):—I am glad Dr. Fischer mentioned the item of laboratory in connection with the construction of hospitals, because it is a very important one. The way laboratories have been built in connection with previous hospitals has been this: You take the entire plan of the hospital, and then after everybody has taken what he wants, if there is any room left, the space is devoted to a laboratory. The laboratory should receive more consideration than it has in future hospital construction. Laboratories should be built on plans furnished by an experienced pathologist. The whole thing may be summed up in this way: The man who uses the laboratory should plan it, so that it is in keeping with the whole institution.

Dietetics are a very important matter. In every hospital of considerable size there should be a diet kitchen for the entire institution connected with a cooking school for the nurses. There should be a dietitian who should teach nurses how to make diets that a physician prescribes. The milk should be sterilized and modified for infants in this department. A diet for gastric ulcer cases should be

prepared here. Special diets for each and every class of cases should be prepared in the diet kitchen. This idea has been introduced and is being carried out in one of the hospitals in this city, and the economy of the plan is enormous. In the same hospital connected with the diet kitchen there is a bread-cutter, a butter-cutter and a toaster. These are utilized scientifically, and the saving per month over the expense of previous months was ninety dollars in the item of bread and butter for 300 persons. The result was very much better, to say nothing of the economy of this method. Instead of having barrels of bread sent away as wasted, there has been practically no bread sent away since. The same way with butter. I believe in the future we will have mechanical therapy rooms and rooms for instituting hydrotherapeutic measures in these hospitals, and these rooms will be built from the plans of those who know what they want.

As to filtering air, it is an easy matter to filter air by passing it through water and heating the water day after day. This plan was first introduced in building construction for the Royal Victoria Hospital, Glasgow, and worked very well, but the difficulty in its application is this: They have to heat an enormous amount of air, so that patients get fresh air. As has been suggested by Dr. Keyes, the error has been committed of forcing the air through coils of superheated steam. In the Presbyterian Hospital, New York, it was found that the superheated steam pipes had a temperature of 400°, so that the life was scorched out of the air that was delivered to the patients. That particular fault can be overcome in this way: You can pass air from the outside over hot water coils, regulated at 160° F., so that the air is not scorched. It is as fresh when delivered to patients as when it came in from the outside. The expense in heating air in such quantities is great. From the point of economy, it is possible only to heat a reasonable amount of air, which will suffice for mild weather, during the rest of the year the air in the rooms must be heated by radiators. If you give attention to steam heating, you will find this, that the steam coil must be 212° F., because unless it is heated to that extent there can be no live steam, and if there is no live steam, there is no heat. The matter of heating and ventilating, therefore, is the most difficult thing in the whole subject of hospital construction. In the heating of the Houses of Parliament in London, which was studied by the best men in England, they have spent many millions during the last thirty years, and now it is still practically unsatisfactory. You can see, therefore, how difficult it is for us to establish a method of heating which is correct.

PERFORATION OF UTERUS DURING CURETTAGE AND EX- CISION OF FIFTEEN FEET AND A FEW INCHES OF INTESTINE, WITH RECOVERY.

SPECIMEN SHOWN.*

W. J. NIXON DAVIS, M.D.

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Although this paper is not one on accidents during the operation of curettage, yet a warning of its danger will not be out of the way. This operation, that perhaps is looked upon by the majority of our profession as a very simple task, the only requirement being strict asepsis, yet, however, accidents are common, far more so than we imagine, such cases being seldom reported.

*Read before the Chicago Medical Society.

A careful examination under an anesthetic is an absolute necessity, satisfying oneself as to the position and size of the uterus, whether free or adherent, also inspecting the cervix carefully. The writer was once mortified at splitting a cervix in its entire length while in the act of dilating. This accident might have been averted had he noticed its cicatricial condition. It is very doubtful if there is any gynecologist who has not had an accident while performing this extremely simple operation. Happily, perforation of the uterine wall with a clean blunt instrument, there being no pathogenic micro-organism in the vagina or uterus, is not such a serious procedure, from a mortality standpoint, providing there be very little bleeding.

Often these cases left to themselves get along famously, nevertheless very serious complications often follow perforation of the uterine wall, by dilators and curettes, this fact inducing J. W. Jarman in the *Gynecological Transactions*, Philadelphia, 1905, to urge that if in course of dilatation or curettage a rupture or perforation of the uterine walls takes place, it is better to perform a laparotomy and satisfy oneself that no untoward results will ensue. This stand is contrary to the general verdict, at the present time, but in these days of asepsis when abdominal exploration is a recognized means of diagnosis, and on the face of the figures of J. Jacob, of Munich, he may not be so far from right. J. Jacob wrote a thesis in 1905 on the danger of instrumental treatment of intra-uterine disease, he collected 141 instances of perforation of the uterus, 23 of which died of septic peritonitis. Of these 141 injuries 73 were inflicted with the curette, 16 with dilator, 14 with forceps and 6 with catheters. It would be interesting to know how many of these fatal cases were operated at once. Jacob does not state. Coming near to the subject in view of this paper, Mr. Bland Sutton, in a clinical lecture delivered in the Middlesex Hospital, London, and reported in the *Lancet Clinic*, Feb. 19, 1908, describes a case very similar to those that Dr. Werelius, of Chicago, has reported and the author is about to do, as follows:

Some years ago a practitioner started to dilate and curette a young married woman for dysmenorrhea; when the cervical canal was sufficiently dilated to admit a finger, something soft was felt in the uterine cavity. Thinking the mass was fetal membranes, he diligently pulled on them until both hands were full; one end he cut through, the other he forcibly pulled away; on dropping the supposed membranes into a pail the doctor found to his horror the supposed membranes were intestines. Eight hours later I was called to the patient and found her nearly dead from the loss of blood. I performed celiotomy, removed a large quantity of blood from the belly, secured the hole in the uterus with a suture. I then found the cut end of the ileum and sutured it to the cecum, for the intestine had been torn away at the ileocecal junction. The abdominal cavity contained neither gas nor feces. A triangular piece of mesentery nearly two meters in length required excision and sutural union of the cut edges. The abdominal incision was closed with a single row of sutures and drained. Recovery. Mr. Bland Sutton does

not mention the amount of intestine removed, but, judging from the mesentery excised, it would probably be not more than eight to nine feet at the most.

Dr. Axel Werelius, of Chicago, in a paper read before the South West Branch of the Chicago Medical Society, February, 1907, and which afterward appeared in the *Journal of the American Medical Association*, March 16, 1907, reports a case of perforation, or rather perforations, of the uterus, for there were seven, with excision of 12 feet 2 inches of intestine, followed by complete recovery. He used a Murphy button, did not remove any mesentery, running a suture along its edge to control bleeding. His case ran a rapid course, the button being passed on the tenth day. In his case there was considerable hemorrhage into the abdominal cavity, the mesentery having been torn away from the intestine, but no fecal matter.

CASE 1.—On March 11 the author was sent for and arrived at Mrs. G.'s residence at 11:30 a. m. and found the patient, Mrs. G., a young married woman, aged 24, height 5 feet 5 inches, weight 136 pounds, well nourished and developed, lying on a bed, moaning as if in severe pain, face pale and anxious, pulse 120, and was given the following history by the doctor that was in charge of the case:

He stated that he had attempted to curette her on account of a persistent flow for three weeks; that he had found an easily dilated cervix and a uterus of four inches in depth; that he had merely placed a placental forceps inside and found a soft mass which he took for the cord and that he had pulled it a little; recognizing his mistake, he put on a vaginal pad and placed her in bed. He requested to be relieved of the case, as this unforeseen accident of such a magnitude had completely unnerved him. His request was granted.

A hypodermic injection of hyoscin gr. 1/250, morphin gr. 1/4, cactin gr. 1/67, was administered and the patient ordered to be removed to the Lakeside Hospital. The patient arrived with pulse 100 and of good volume. Another hypodermic injection of hyoscin, morphin and cactin given half the former strength. She was placed on the table, prepared for both laparotomy and curettement and catheterized. On examination there lay on the table several feet of intestine, entirely denuded of mesentery. A laparotomy being the only resource available, it was immediately proceeded with by the author, assisted by Dr. R. H. Buek and Dr. J. T. Wood, the internes.

Operation.—The intestines, having been washed in bichlorid and alcohol, were wrapped up and an abdominal incision three inches in length was made in the median line two inches above the pubes and subsequently enlarged. The abdomen was opened, inspected and, to the surprise of all, there had been very little hemorrhage, the cavity sponged out, some clots and fecal matter removed, on manual examination a transverse tear on the anterior wall of the uterus, one inch from the fundus, was found and one coil of intestine protruding into the uterus, the other end having been torn off. The intestine was withdrawn into the abdominal cavity and wrapped up and laid aside. The uterus was now walled off and its anterior wall curetted. The tear was closed by eatgut. The intestine was now inspected and found to be extremely devoid of mesentery for a distance of what afterward on measurement proved to be a few inches over 15 feet.

Search was made by following the mesentery around, and the ileum was found to have been torn three inches from its junction with the cecum. This was clamped. Pulse 100, firm and strong. On inspection of the mesentery there was absolutely no sign of bleeding, a few loose tags here and there, otherwise it was stripped clean. On cutting two of these tags they bled profusely and had to be tied, so it was decided to leave the mesentery alone. The intestine devoid of its mesentery was now cut off, one inch of intestine with mesentery was sacrificed at each end to get good union and a Murphy button selected to perform anastomosis.

The large size was decided on to obviate as much as possible postoperative stricture. The button having been locked, the mesentery was united for about five or six inches with catgut suture, the precaution of two silk sutures being taken. The patient was now placed in Fowler's position and two gallons of normal saline solution used to irrigate the abdomen. A drainage tube one inch in diameter was inserted with two strips of gauze inside and three strips outside. The wound was closed, peritoneum by continuous catgut suture, muscles and fascia by interrupted catgut and skin by horsehair and dressing applied.

The patient was now placed in the lithotomy position, parts rescrubbed, and the posterior wall of the uterus everted, a strip of iodoform gauze inserted into the uterus, two into the vagina. Patient was removed to a private room. Pulse, 84, good; 3:30 p. m. patient awoke, skin dry and warm.

Postoperative treatment, day of operation: A continuous irrigation was ordered of hot normal saline per rectum for twenty-four hours. Nuclein, gr. xl. hypodermically, was given every eight hours to increase resistance, ordered to be catheterized every ten hours if necessary; 8 p. m., temperature, 100; pulse, 84; respiration, 32; skin warm and moist; pain constant, sharp and shooting. Bed raised eight inches at the head.

First day after operation: Morning.—Temperature, 100; pulse, 80; pain very severe; a high candle power electric light ordered to be used for fifteen minutes hourly; after first application pain relieved. Afternoon.—Temperature, 99 $\frac{2}{5}$; pulse, 78; patient feeling splendid; urinated; water in small quantities allowed. Case dressed clean. Requested her manicuring outfit to be brought down.

Second day after operation: Morning.—Temperature, 99 $\frac{2}{5}$; pulse, 68; patient restless; considerable emesis of a dark green nature; kidneys secreting nicely; some flatus passed in the evening. Case dressed clean and gauze strips loosened; serious discharge. Afternoon.—Temperature, 99 $\frac{2}{3}$; pulse, 70; patient spoke very highly of effect of light, saying it relieved her pain and made her feel stronger. Light applied for fifteen minutes at intervals over abdomen and back. Nurse reports light generally sends patient to sleep. Water *ad libitum*; slight watery dark brown bowel movement.

Third day after operation: Patient had severe abdominal pain in the morning for three hours, which combination enema, also light, failed to relieve. Hyoscyamin, gr. 1/500; nitroglycerin, gr. 1/250; strychnin arsenate, gr. 1/134, dissolved in water and repeated in half an hour. Fifteen minutes after second dose pain entirely relieved and patient went to sleep. Case clean. Pulse and temperature the same.

Fourth day after operation: Case dressed; serious discharge. Tube removed and gauze drains inserted; patient feels fine; bright and cheerful. Morning, temperature, 98 $\frac{3}{5}$; pulse, 80. Evening, temperature, 99 $\frac{1}{5}$; pulse, 80.

Fifth and sixth days: Case clean, slight discharge, bowel movement; kidneys acting well; flatus freely discharged; bright and cheerful.

Seventh day: Nutrient enema every four hours; patient bright and strong, but begins to show loss of weight. Temperature, maximum, 100; pulse rate, 100, not quite so good. Strych., gr. 1/30, every four hours; nuclein discontinued. The physiological symptoms of the nuclein being rise in pulse rate, 1 per cent. lysol douche ordered.

Ninth, tenth, eleventh days: Maximum temperature, 100; pulse, 104; case dressed daily; clean. Rise of pulse rate diagnosed as starvation; rare beef to be chewed every four hours; broth, milk.

Twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth days: Uneventful. Slight pus showed up. Temperature, maximum, 99 $\frac{3}{5}$; minimum, 97; soapsuds enema daily; entire body massage with coeca butter night and morning; patient sat up with back rest fourteenth day.

Eighteenth day: Patient weighed 111 pounds.

Nineteenth day: Out on porch. Button passed; no discharge.

Twentieth day: Patient up and around; weight, 113 pounds.

Twenty-fourth day: Patient went home.

About two weeks afterwards patient had severe diarrhea from eating lettuce; castor oil, one ounce; next day better. Patient has three or four movements daily. About one month afterward patient was in a very nervous condition from pain on bowel movement, described as tearing and burning; made her cry and dread the stool. Diagnosed as due to unabsorbed bile; recommended to anoint rectum with vaselin; applied on the finger; relief. At present time, three months after operation, the patient is in splendid health, two daily bowel movements; helps with the household duties. Her dietary consists of meat, bread, eggs and milk. Vegetables and fruits can not be eaten without causing diarrhea. She says she feels strong; she suffers no pain or inconvenience of any kind, except the fact that she is ravenously hungry all the time. Her stools are, as she puts it, like a child's. Weight, 129 pounds.

SUMMARY.

1. Before performing curettage make absolutely sure of the position of the uterus, whether free or adhesions exist, noting position carefully, especially as to the flexions; also inspect cervix.

2. Amount of intestine removed; although this is a few inches over fifteen feet, the patient at present is well nourished and apparently well; owing to the lessened extent of the intestine and the naturally lessened surface for absorption of food, her appetite is very large.

3. The slight amount of hemorrhage considering the magnitude of the injury.

4. Absence of shock; was this due to morphin being given within half an hour of injury? Probably yet. When seen the patient was in collapse; on arrival in the surgery her condition was good; twenty-four hours after operation splendid, as evidenced by all physical signs and the request for her manicuring outfit.

5. Great loss of weight, although the patient was allowed water from the second day, nutrient enema on the sixth and fed freely on the ninth.

6. If a similar case were to present itself the intestine would be removed per vaginam.

7. The anterior wall of the uterus was curetted through the abdominal wound to be sure of cleaning out the uterus and not tearing it again on curettement. The author, owing to circumstances, was absolutely sure there were no pathogenic germs in the uterine cavity, so thought he ran no risk of infection by adopting this course and knowing that complications would ensue if any fetal products were left in the uterus to decompose.

8. The rise of pulse rate about the tenth day was probably due to pus pocket found a few days later, but pus was very small in amount and starvation may have had something to do with it.

9. The use of a high candle-power light in preventing infection and relieving pain; although there was free fecal matter in the abdominal cavity, no peritonitis developed. The use of a high candle-power lamp seems to have very great pain-soothing qualities.

Sept. 11, 1908, patient in perfect health; five meals a day; weight, 135 pounds.

DISCUSSION ON THE PAPER OF DR. DAVIS.

Dr. A. P. Heineck:—The essayist, Dr. Davis, is to be congratulated upon the successful outcome of the case which he has reported to us this evening. I am, to a certain extent, conversant with the literature, which has appeared during the last ten years, on perforations of the uterus. In all intra-uterine maneuvers one must keep in mind that there are dangerous uteri, dangerous maneuvers and dangerous instruments. Dr. Werelius, of Chicago, reported last year in *The Journal A. M. A.* a case in which, in an attempt at criminal abortion, the uterus was perforated seven times and several visceral injuries inflicted. In that case Dr. Werelius resected 12 feet of intestines and repaired the rents in the uterus. His patient recovered. At the end of eight months she had gained thirty-one pounds in weight. She has since given birth to a normal healthy child. Labor was uncomplicated. Dr. Hessert, also of Chicago, reported in the *American Journal of Obstetrics*, 1905, a case in which the uterus was perforated by the blades of a Goodell dilator. This uterine perforation also was associated with grave visceral injuries. Dr. Hessert had to laparotomize his patient, resected four feet of intestine and sutured the uterine perforation. His patient recovered, subsequently became pregnant and went through a normal confinement. Numerous are the other similar cases that could be cited. From my literary and clinical study of the subject I have come to the following conclusions:

1. Spontaneous perforations of the uterus due to pre-existing pathologic conditions of this organ can and do occur.

2. Perforating wounds of the uterus, be they intraperitoneal or extraperitoneal (there have been twelve such cases reported during the last ten years), have a morbidity; have a mortality. This morbidity, this mortality, increases in direct ratio with the inexperience, the carelessness, the surgical ignorance and the surgical uncleanness of the operator. The expert recognizes, at once, the making of a false passage and institutes proper treatment. High surgical skill may convert an apparently hopeless case into a recovery.

3. Dilatation of the cervical canal and instrumental curettage of the uterine cavity are, owing to their associated dangers, not office operations. During the performance of these two operations the operator may be confronted by accidents, the meeting of which requires the highest surgical skill.

4. Once the uterus is perforated, all further intra-uterine instrumentation must be suspended. If it be imperative that the contents of the uterine cavity be removed, this must be done either by digital curettage, or it may be done with a curette, while the uterus is being watched from above through a laparotomy incision.

5. A perforated uterus should never be swabbed or mopped with caustics or irritating antiseptics. It is needless, it is dangerous.

6. A perforated uterus should never be irrigated.

7. The treatment of perforating wounds of the uterus is determined largely by the following conditions:

A. The septicity or asepticity of the uterus and its contents.

B. The septicity or asepticity of the perforating instrument.

C. The presence or absence of coexisting vascular, omental or intestinal lesions.

D. The size of and the number of perforations. A piece of omentum may prolapse through a large rent. A coil of gut may become incarcerated or strangulated in a large perforation.

8. If the perforated wound has been inflicted upon a non-septic uterus during the course of an aseptic intra-uterine maneuver, in the absence of complicating abdominal lesions, recovery is the rule.

9. A. If the uterus be non-septic, if the perforating instrument be aseptic and it can also reasonably be assumed that there is an absence of omental, intestinal or important vascular injuries, the treatment to be followed is one of armed expectancy. The patient must be confined to bed and perfect rest enjoined for at least three days. Patient's pulse, temperature, feces and abdomen must be carefully watched. A wick of gauze may be inserted into the uterus, but it should

not be introduced much beyond the internal os. A suppurative peritonitis, circumscribed or diffuse, a suppurative pelvic cellulitis, signs of internal hemorrhage, etc., call for intervention.

B. In all cases in which there has been a prolapse of omentum or of intestine into the uterine cavity; in all cases in which associated injuries to the intestines or omentum coexist, or in which there are reasons to fear a significant internal hemorrhage, laparotomy is urgent.

C. Once the abdomen has been opened, proceed according to indications.

10. A healed perforation of the uterus apparently does not interfere with the normal development and normal termination of a subsequent pregnancy.

Dr. Carl O. Young:—I wish to congratulate Dr. Davis on the excellent result obtained in this case of perforation of the uterus. There are one or two things I could not quite understand, and one of them relates to a high incandescent light relieving pain. I may have misunderstood the Doctor in what he said, but I should say that the relief of pain was brought about more by the mental effect than by the incandescent light.

The point he made, that unabsorbed bile, being discharged over the skin around the anus, caused irritation, which was relieved by the application of vaselin, would seem rather strange to me, since in our gallstone operations we do not infrequently have bile flow over the skin without causing any trouble. Most likely it was pancreatic juice in his case that caused the irritation and not bile.

Dr. Davis (closing the discussion):—As to the therapeutic action of vaselin it was only mechanical until the rectal mucous membrane had become accustomed to the bile. As to whether it was pancreatic juice or bile he did not consider it of sufficient importance to have the secretion analyzed, but if Dr. Young had ever taken a good dose of calomel he would probably appreciate the poor woman's suffering, be it bile or pancreatic juice. As to the light, he was quite prepared to hear the cry of suggestion. In these days of therapeutic nihilism, if anything was beneficial in the way of drugs or other therapy, barring surgery, one immediately heard the tiresome cry of suggestion—suggestion—suggestion. Well, it might be suggestion. If so, it is a very fine form of suggestion, a form that was appreciated by the patient even more than himself. How the light acted the author was not prepared to say, not being able to prove and preferring not to theorize.

The author has had three cases of peritonitis within the last six months that were typical cases where a bad prognosis might be given, and yet under the light and calcium sulphid, gr. i, exhibited hourly, these cases were normal within forty-eight hours as to pain, pulse rate and temperature around 100. One of these cases, a ruptured ectopic pregnancy, was afterward operated and contents evacuated, adhesions of a very dense character existing, walling off everything in a most satisfactory manner. In two cases of pus tubes the light relieved the pain every time applied.

The author has also noted that in every case of minor surgical injuries sustained by employes of two companies employed in construction work (tunneling), he has absolutely had no infection or sign of infection in any of these cases, all treated by one-half hour daily under a lamp. The men all come in expressing fear of blood poisoning, as they express it, stating that under this class of injury they often get it. One other case is worth recording.

A motorman ran into a wagon used for removing the contents of privies. He came in in a horrible condition. His hand was all mashed up, necessitating the amputation of the first three fingers, leaving him practically no palm to speak of. Fecal matter, sticks and dirt were ground in between the muscles, leaving nothing but the thumb and little finger and the skin on the dorsal surface of the two first fingers intact. This was used to make a palmar flap extending up to the wrist.

Immediately a light was used for one hour, in conjunction with a 1 per cent. solution of lysol constant irrigation. He was then taken to the Lakeside Hospital and operated on the next day. The arm was swollen, with considerable

lymphangitis. A light was procured, and within twenty-four hours the swelling had disappeared (30 c.c. of antitetanic serum being administered as a precaution). He left the hospital in two weeks without any infection, the parts healing by first intention.

The author advises the trial of light in all cases of infection or, better still, cases where infection is feared, not leaving it too late and then condemning it. If it will not do anything else, it will relieve the pain. As to the kind of light, the author has especially avoided naming any particular machine and is satisfied with any electric light and reflector giving over 300 candle-power.

LUDWIG'S ANGINA: A REPORT OF FOUR CASES.*

GEORGE NATHANIEL PRATT, M.D.

CHICAGO.

The first case of Ludwig's angina which came under my care occurred in 1903 in my service at the Cook County Hospital; it was in a man who had received a fracture of the lower jaw with perforation of the fragments externally and into the floor of the mouth; there was infection and following the characteristic submaxillary and sublingual swelling. Because of my lack of knowledge of the disease at the time, I did not attach the importance it deserved to the symptom complex, and because of this and because the man was removed from the hospital and lost track of and the outcome consequently not known, I have not included this in my report. My next case occurred in November of last year and the next in January, 1908, and it was because of the peculiarities of these and the various and contradictory views expressed in the rather limited literature on the subject that I began a thorough review of the literature and made some dissections to try and satisfy myself as to why infection in this locality should be so distinctly different from the same condition in other parts of the body, and discover the real cause of the extremely high mortality and the suddenness of the same. While engaged in this the excellent and exhaustive article of T. Turner Thomas of Philadelphia appeared in *Annals of Surgery* (February and March, 1908), which covers the ground so thoroughly and includes much more than I had done or probably could have done and gives such a demonstrated explanation and solution of the several points of previous variance and clears up so entirely the heretofore vague and poorly understood points, that I had no need for further effort along these lines. Because of the recentness and completeness of the article I will not go into details, but simply mention a few points which are, I think, of sufficient importance to warrant repetition and emphasis. I wish to say, in passing, that from my observations, both clinically and on the cadaver, I can corroborate the findings and deductions of Thomas.

There is nothing new in the condition under consideration, for while first described by Ludwig in 1836 as a disease entity, it was recognized by the ancients and is spoken of by them under a variety of names.

* Read before the North Shore Branch of the Chicago Medical Society, June 10, 1908.

While it is probably a comparatively rare disease, it is not nearly so much so as the few reported cases would indicate (Thomas was able to collect only 106, including his own two)—a great many cases are undoubtedly not recognized and are classed as cervical or submaxillary abscess and death assigned to "sepsis," "toxemia" or some other mistaken cause—or if the correct cause is given the *modus operandi* is not recognized. Death from cervical abscess or submaxillary abscess should be a rarity and the probabilities are that the majority so reported are unrecognized Ludwig's anginas—this is due to the little attention which has been paid to the disease and to the anatomy of these parts and the lack of general knowledge regarding both—the majority I believe, like myself, having become familiar with them only after acquaintance instead of before, as we should with a disease which, though comparatively rare, is always a possibility in submaxillary infections (a comparatively common condition) and which has a mortality of 40 per cent., so far, under favorable circumstances. It was deemed of sufficient importance for the French Surgical Society to devote a number of entire meetings to its consideration in 1892.

Definition.—Any cellulitis of the submaxillary region, *extending into the floor of the mouth*, i. e., involving the sublingual region, is a Ludwig's angina. *Without the sublingual involvement it is not.* We may, however find a primary involvement of the sublingual region with or without subsequent submaxillary involvement. This is also a Ludwig's angina. The latter, however, are very rare.

The chief points of interest are, how does this extension take place, and having taken place, why the disastrous and sudden results? These two points can best be understood from a study of the anatomy of the parts involved. I have here dissections of this region of the neck, mouth and pharynx. Note first the position of the submaxillary gland, the large amount of cellular tissue around it; the close proximity of lymphatic glands, the extension of the submaxillary gland through the opening between the post border of the mylohyoid muscle and middle constrictor, over the posterior border of the former into the alveololingual sulcus—its anterior extremity nearly or quite in apposition with the posterior extremity of the sublingual gland, thereby carrying a bridge of the cellular tissue, the tissue by which these infections spread—from the neck to the mouth, also the U shape of the sublingual gland lying in the deep alveololingual sulcus with a large amount of the cellular tissue around it. Note also how completely the tongue fills the mouth and the fixed boundaries on all sides except posteriorly—roof of mouth above, jaws and teeth at the sides—mylohyoid muscle below; the relation of the base of the tongue with the attached epiglottis to the trachea and the effect thereon of crowding back the tongue by a deposit in front of it; also note the ridge formed by the attachment of the palato-glossus and stylo-glossus muscles to the base of the tongue and the close proximity of the larynx to a rapidly spreading cellulitis which has passed this ridge. You will note also that this opening above mentioned is the

only weak spot in the barrier between the connective tissue of the neck and submucous tissue of the mouth and pharynx. It is easy to understand, therefore, how a cellulitis beginning in the submaxillary region may travel along this bridge of connective tissue to the sublingual region, crowd the tongue back and thereby embarrass breathing, pass over the ridge at the post margin of the tongue (which, however, contains but little connective or submucous tissue, and hence progress here is slower), enter the pharynx and involve the larynx (less than two inches away), with the resulting disaster—edema of the larynx, or pneumonia, or both. The barrier formed by the ridge at the post attachment of the tongue and the lack of cellular tissue therein with the consequent resistance to spreading infection, explains why there is so great swelling in the sublingual region before there is pharyngeal or laryngeal involvement and the rapidity of the latter after the barrier is passed. As the floor of the mouth becomes involved the tongue is pushed upwards by the resulting swelling and the mouth is opened to give more room, if it can be opened, but usually the hard swelling at the angle of the jaw prevents this to any great extent, with the result that room is found in the direction of least resistance, i. e. posteriorly into the pharynx, thereby crowding the epiglottis down upon the glottis, and cutting off the air passages, causing the difficult breathing noted in the early stage of the disease and interfering with swallowing.

The same condition is true of the infection itself. After entering the mouth and involving the sublingual region, it also extends in the direction of least resistance, posteriorly over the already described ridge, where it suffers a temporary delay, into the pharynx and then rapidly to the larynx, less than two inches distant, with resulting edema and death. Most of the cases die in this way and practically every postmortem examination *thoroughly performed* has shown sufficient laryngeal involvement to warrant a diagnosis of edema of larynx. This course also explains those cases wherein a pneumonia has been the cause of death, and gives a reasonable and logical explanation of why death is due to respiratory involvement instead of a systemic toxemia, as has been held by some writers. Moreover, there is usually a surprising lack of constitutional symptoms, even with the most severe local symptoms. Most fatal cases die suddenly without sufficient constitutional symptoms to warrant the stand of a systemic toxemia and often before such a condition could develop.

The disease runs a course which may become grave or fatal in a few hours. Others may run a mild course for a longer or shorter time and then suddenly become grave, always from respiratory trouble. The usual case will die or get well within a period of about fourteen days. The temperature is low, 100-102, and pulse correspondingly low; both increase, however, with respiratory involvement, if the patient does not die too soon. A number of investigators have tried to isolate a particular infective agent as the cause of this disease, but without success. A variety of bacteria have been found, but streptococci or staphylococci, or

both, and probably present in all cases, the streptococci more frequently. The increased severity of the disease and the greater fatality over similar infections in other parts of the body are due, not to the kind of infection, but to the location and anatomy of the parts involved.

The source of the infection is a tonsillitis, ulcerated or carious tooth, ulcer of the mouth, or any infective area in the mouth; the infective material passes by the lymphatics to the lymphatic glands of the submaxillary region, involves the gland and the surrounding cellular tissues before a protecting wall of lymph can be formed, as is done in the ordinary lymphadenitis, and spreads by the path already outlined; and also to the posterior maxillary fossa, and may follow the cellular tissue around the blood vessels, passing through the fossa, to the pharyngeal wall, as happened in Case 3 of this report. In two of my cases the trouble followed a tonsillitis, in one it may have been a tonsillitis or from an ulceration about a molar tooth.

Symptoms.—The swelling comes rapidly in the submaxillary region, forcing the jaw forward and preventing opening of the mouth, followed shortly by swelling in the floor of the mouth of a U shape, more or less pain and sensitiveness, tongue crowded out of mouth if it can be opened, increased flow of saliva, difficult breathing and swallowing, poor articulation, increase of swelling which takes on a peculiar purplish hue and *board-like hardness, which does not pit on pressure*, dyspnea and death unless relief is obtained by spontaneous or surgical opening. The swelling may be very extensive, encircling the neck, between jaw and clavicle and even extending down the back. It may pass around the neck and involve the other side; one peculiarity of the disease is the apparent absence or scarcity of pus. I say apparent absence, because there is probably always pus present, but owing to its small quantity and the extensiveness and hardness of the swelling, absolutely masking the anatomy of the parts, we are unable to find it. When found, it is often only a few drops and is frequently located under the mylohyoid muscle; this is due probably to the properties of streptococci for the formation of serous exudate rather than pus—gas is sometimes found—gangrene is very frequent, due to the pressure of an increasing hard induration in a limited space, it usually involves the structures within the mouth or throat, where the pressure is greatest and is sometimes very extensive.

Diagnosis should never be difficult, as there is no disease with which this can be confused. The prognosis, under proper treatment early applied, should be much better than the past report of cases has shown. I do not believe that spontaneous resolution ever takes place, and cases so reported have probably had an undetected spontaneous opening. Without spontaneous or surgical opening the patient will die, and even with spontaneous opening or late surgical opening many will.

Treatment is purely surgical. Free incision in all submaxillary swellings due to infection before it involves the sublingual region will probably prevent this involvement in a great majority of cases. If such involvement has taken place the incision should be more free and blunt

dissection carried through the mylohyoid muscle to the mucous membrane of the floor of the mouth. Incision should be parallel to and below the border of the lower jaw and also over the point of greatest prominence if not included in first incision. Always use blunt dissection, as the infiltration is so great as to preclude any possibility of distinguishing the various structures. While pus is frequently found in the floor of the mouth and spontaneous openings usually occur internally, because of the decreased resistance in that direction, yet incisions in the floor of the mouth have not been satisfactory and should not be used unless in conjunction with the external incisions as above.

If breathing becomes sufficiently embarrassed tracheotomy should be performed, though it seems to have little effect, and death usually follows shortly if the condition has become serious enough to require this step.

Autopsies have shown, as already stated, pus with destruction of varying quantities of tissue and always involvement of the larynx or lungs, or both, but more especially has it shown that in this disease incision has not been sufficiently free or done early enough. This point cannot be sufficiently emphasized. It is the whole essence of successful treatment, and while it may seem extreme to one who has not seen these cases, failure to do so will cause disaster and the keenest regret.

There has been a great deal of discussion as to whether the name of Ludwig's angina should be retained and the disease given a definite place in literature or classified under some general heading as a form of some other disease. It would seem to me that the name fits the condition unusually well. It is a typical angina and fulfills better than conditions usually do the classical definition of an angina—a condition located within or between the mouth and lungs which interferes with respiration. It is certainly a disease entity and Ludwig was the first to so recognize it. I should say to retain the name by all means.

CASE 1.—Male, aged 62. I first saw him Nov. 2, 1907, in a cheap lodging house; he had then been sick for about a week with a sore throat. He had been a very heavy drinker for a great many years; "thought he had syphilis when a young man"—has always been healthy. On examination pharynx is considerably inflamed, but no swelling of the tonsil. Around the last three molar teeth on each side there is a great deal of inflammation. Temperature 100, pulse 88, respiration 18. Says he feels pretty good but has no appetite, hurts to swallow. Constipated. Given potassium iodid and salicylic acid—calomel to move bowels—boric acid, mouth wash.

Nov. 21: Feels about same, but less pain on swallowing. Jaw feels a little stiff and can not open mouth very wide, pharynx less inflamed, teeth more so, says he has been using a good deal of mercurial ointment on account of vermin, and with the look of the teeth, I was suspicious of mercurial poison. Temperature 99, pulse 82, respiration 20.

Nov. 22: Large swelling of both submaxillary regions which he first noticed about midnight, and have increased rapidly since then (11 a. m.). Can not open mouth wide enough to see throat—pus oozing from gums around molars on both sides—no swelling in floor of mouth. Swallows all right. Temperature 99½, pulse 90, respiration 22. Pus from gums shows streptococci and staphylococci, gums cleansed with peroxid, cauterized with pure carbolic, followed with alcohol. Incision recommended but refused to allow any "cutting."

Nov. 23: Swelling of submaxillary region increased, complains of considerable difficulty of swallowing and at times great difficulty in breathing, at which time he feels as if smothering; can not lie down on account of dyspnea; can open mouth only far enough to allow insertion of finger; semi-circular hard swelling (U-shape) in floor of mouth; can not see molar teeth. Temperature 100.3, pulse 110, respiration 26.

Nov. 24: Sublingual swelling more pronounced, tongue raised against roof of mouth; dyspnea and dysphagia extreme; can not talk so as to be understood; mind clear; operation refused by self and family. Temperature 100.5, pulse 130, respiration 32. Did not expect him to live through the day.

Nov. 25: About 5 p. m. yesterday suddenly felt relief of dyspnea, and was more comfortable during night. There is a discharge of saliva and some pus from mouth, but can not see where latter comes from, there has been probably a spontaneous opening into the mouth accounting for relief. Temperature 101, pulse 124, respiration 30. Pus shows streptococci and staphylococci, the former predominating. After considerable arguing, consent was given to open, which was done freely below border of lower jaw under cocaine and blunt dissection with finger done in all directions and into floor of mouth, but no pus located. Large quantity of dark blood discharged. Had to discontinue on account of condition of patient, who became cyanotic and stopped breathing; tracheotomy done; large amount of bleeding from superficial veins; patient breathed through tube and felt considerable relief.

Nov. 26: Patient felt somewhat better in the morning, but in the afternoon began to have return of dyspnea. Temperature 101, pulse 120, respiration 34. Area of dullness over lower lobes of both lungs. From this time on he began to get worse. At times slightly delirious but mostly rational; had incontinence of both bowels and urine. Temperature gradually rose to 104.4, pulse varied from 120 to 160, respiration from 34 to 50 until December 4, when he became cyanotic and died suddenly about 11 p. m. No autopsy permitted.

This case shows distinctly the several progressive steps in the disease if not aborted by radical measures; and also shows a systemic intoxication, which has, however, in a sense, secondary—the spontaneous opening which undoubtedly occurred prolonged his life or he would have died before any systemic symptoms had developed—and I believe that had he permitted free incision of the affected areas when first advised he would have recovered.

CASE 2.—Male, aged 36. Strong, healthy man; family and personal history negative; does not drink or smoke, never has. Called to see him, January 8, on account of sore throat which he had had for about five days. Found tonsillar abscess which was opened freely, and second day thereafter felt all right and returned to work. On the morning of January 24, I was again called to see him on account of a swelling in submaxillary region on right side which had developed during the night of the 22d, and had increased very rapidly during the past night. It extends from parotid region to mid-line of neck and from lower jaw nearly to clavicle. Is hard as a board, of purplish color, not sensitive to touch, mouth can be opened enough to admit little finger which causes considerable pain. There is a considerable sublingual swelling extending in semi-circle (U-shape) around floor of mouth. This is also hard. Tongue pressed against roof of mouth. Breathing is slightly labored, complaining of slight difficulty in swallowing; can not articulate so as to be understood. Temperature 99.8, pulse 96, respiration 33. Under light gas anesthesia, given through nose, an incision was made from angle of jaw about one-half inch below margin of lower jaw to mid-line of neck and blunt dissection carried down to the mucous membrane of the floor of the mouth. No pus found. Another incision about three inches in length was made over the outer border of the sterno mastoid midway between the angle of jaw and sternum because of the prominence of the

swelling there and I thought, or rather I knew, pus was there. Free blunt dissection was made in all directions, but no pus found; there was, however, very free hemorrhage of very dark blood. There was almost immediate relief and the convalescence was uninterrupted. The opening of these conditions is a more difficult matter than we would suppose, as on account of the dense extensive induration one can not differentiate the structures and extreme care is essential. Blunt dissection should always be used.

This case shows the suddenness with which the disease may appear and become serious, the sublingual swelling following the submaxillary so rapidly as to make it difficult to say which appeared first, and also the rapidity with which early and thoroughly opening will lead to a recovery, and it must be both early and thorough—either one is not enough. Had an expectant or palliative plan of treatment been followed this man would very probably have died suddenly from edema of the larynx.

CASE 3.—Male, aged 45; fairly stout; height, 6 feet; weight, 190 pounds. Pneumonia six years ago. Diabetes mellitis discovered four years ago. Passed life insurance one and one-half years ago. First seen with present trouble Feb. 24, 1908. Was taken sick on evening of February 20, with cold and sore throat, but went to his business on 21st, since which time he has been at home. Wife says he had high fever Friday night and Saturday. Soreness began on outside of neck on right side, back of mastoid process; this disappeared and soreness then began in throat on right side which swelled rapidly. When I first saw him, temperature was 101, pulse 100, respiration 20, both tonsils swollen, left only slightly, right very much; whole pharyngeal wall inflamed. Right tonsil opened in three places. Small amount of pus and considerable dark blood. Recovery was rapid and on the 28th felt particularly well. On the night of March 1, felt all right and sat up till about 1 a. m. Went to bed feeling O K, but shortly after began to have pain in outside of neck on right side and was awake all night with it. It still continues. Temperature 101, pulse 98. Very nervous and restless; ice bag applied. March 2 had a bad night; neck red and swollen on outside extending from mastoid process to clavicle and nearly to acromion and from middle line in front to mid-line in back. Swelling has a boggy feeling and is quite tender over point just below lobe of ear. Complains of constant pain; no swelling in floor of mouth. Swelling opened under local anesthesia along anterior border of sternomastoid over most likely point for about two and one-half inches and blunt dissection carried in all directions to a finger's depth. No pus but large quantities of almost black blood. Ice reapplied. Temperature 101, pulse 110. Felt considerably relieved afterwards. Throat O K, no swelling or bulging of tonsil. In the afternoon feels a little easier but getting very nervous. Can not open mouth to more than one-half usual limit. Finger detects a U-shaped induration in floor of mouth.

March 3, Morning: Very bad night, had great deal of pain, extremely nervous, refused ice but derived some relief from hot salt bags. Neck more swollen, of purplish hue and hard and board-like, still discharging blood; neck measures about 22 inches. (Usually wears a 17 collar.) Temperature 99½, pulse 98. Hot borie compresses applied to neck, changed every twenty minutes; appetite good. Tongue heavily coated with thick white coat. Breath foul, bowels O K; urine scanty and highly colored; specific gravity, 1032; sugar, 5 per cent.; no acetone. Afternoon: Temperature 100½, pulse 120; otherwise no change except more restless and nervous. Given H. M. C. tablet and strychnin 1.30 hypodermically.

March 3, Morning: Had a good night under opiate; feels better; local condition unchanged. Sterilized hot flaxseed poultice applied every half hour. Complains of severe headache and exereciating pain shooting up over the right eye and down to shoulder. Good bowel movement from cascara. Urine same as yesterday.

March 5, Morning: Slept well under opiate; breathing rather heavy and at times labored. Temperature, morning, 99, afternoon, 101; pulse 95 and 135; respiration 28 and 30. Neck same, mouth same; extremely nervous. Appetite good; losing considerable flesh and begins to feel weak, but is up and about the house; will not stay in bed.

March 7: Opened wound and probed in all directions. No pus but much dark blood. Voice thick. When asleep has smothering attacks and can not get breath; awakens with a start and feels weak and exhausted; once turned blue. Can open mouth enough to permit of examination of throat although it is difficult to force root of tongue, which is crowded up and back out of the way. Right tonsil and posterior pharyngeal wall red and swollen; both lanced; only dark blood at the time, but later small amounts of pus from pharyngeal opening (this, owing to the patient jumping, was not as thorough as it should have been). Felt better afterwards but breathing still bad. Temperature 99-100½. pulse 90-110, respiration regular and sometimes labored. Tongue covered with a nasty, brownish, thick coat; breath very foul; is troubled with large quantities of saliva and much thick mucus in the throat.

March 8: Better except for breathing, which is worse. Chokes when swallowing. Given morphin ½ grain, atropin 1/100, strychn. sulphate 1/30 at night.

March 9: Breathing during night very bad. Swallowing difficult, otherwise no change.

March 10: Throat draining, swelling a little less and edges softening a little. Breathing bad, feels weaker, complains of throbbing in head, mostly right temple; relieved by pressure on left carotid artery probably due to embarrassed return flow on right side from pressure of swelling; this is also probably accountable, by pressure on pneumogastric, for irregularity in breathing but not for embarrassed respiration. Temperature 99-101, pulse 100-120; given 15 grains bromids with 2 grains of valerian, every two hours during day and 20 grains bromids and 10 grains chlorotome at 8 and 9:30 p. m., instead of hypodermic on account of breathing.

March 11: Feels better, throat discharging freely, voice thick, enormous amounts of mucus in throat; appetite gone. Has been on anti-starch diet since March 7. Urine shows 5 per cent. sugar and trace of acetone. Given citrate of iron ʒi, citrate of potassium grains xl, aqua ʒviii, two teaspoonsful every two hours through tube; also sulphonal and chlorotome āā 10 grains, strychnin sulphate 1/40. Repeat in two hours if needed.

March 13: Breathing worse. Temperature 99.4, pulse 100-124. Right shoulder emaciated and droops; losing weight rapidly; has been slightly irrational a few times; great difficulty in swallowing; food catches and causes choking. Pharyngeal opening closed and swollen; opened. Urine: Specific gravity, 1.036; quantity, 18 fluidounces; sugar, 5 per cent.; acetone, trace; very weak but still about house; will not lie down.

March 15: About same. While I felt positive that the local conditions needed surgical attention and free opening and drainage, I did not dare submit him to an anesthetic or to the shock of operation without an anesthetic on account of the urinary findings. Called Dr. Hoelscher and Dr. Young in consultation. Advised continuance of treatment, more liberal diet, giving some starches.

March 16: Began to use a 500 e.p. therapeutic electric light on the swelling—ten and twenty minute applications as often as pain in neck is especially troublesome. From the 15th to the 24th, improved considerably except the breathing and throbbing in head. The light relieves pain in neck almost completely and since its use swelling has softened and gone down 50 per cent. Is not sleeping well at night and gets nervous and restless; given codein ½ grain, strychnin 1/40 grain and repeat in one hour if needed, and again in night if needed. These seem to work better than anything else. Breath very foul. Acetone has increased very considerably. Given soda bicarbonate ʒii, calcium carbonate xx grains, every two hours.

March 24: Has felt nervous, but otherwise better until 3 p. m., when he went all to pieces; had nervous chill, cried. Temperature 104, pulse 130. Given cold bath 20 minutes, reducing temperature to 102; strychnin 1/30 grain hypodermic every three hours. Urine: Sugar, 3½ per cent.; acetone trace, quantity normal.

March 25: Feels much better in all ways and continued to improve. On March 27 and 28, had pain and soreness and some swelling (?) on left side, which disappeared under applications of the therapeutic light.

March 29: Complains of itching all over and in the afternoon broke out with a rash like hives on arms and body—and a well-developed purpura hemorrhagica on legs—eyelids and lips swollen. A diabetic purpura. Given bicarbonate of soda ½ oz. every three hours.

April 4: Has improved in every way, rash gone, strength returning rapidly. Has been going outdoors for ten days. Still difficult to swallow and will not eat solids and still has fullness and throbbing in head and in ears usually in late afternoon. Tongue heavily coated and breath foul; throat still discharging, neck very much reduced, still hard; calomel and podophyllin each 1/10 gr. four times a day; codein ½ gr. when needed; hemabaloids two teaspoonfuls three times a day.

April 5: Felt comfortable last night though a little more difficulty in swallowing. About 4:30 a. m. awoke from sound sleep with feeling as if throat was filling up and would choke to death; could scarcely get breath at all; became cyanotic. Outside of neck on both sides felt stiff. Right side of throat and pharynx as far down as could be seen edematous; multiple puncture over this area. Light to neck to relieve stiffness; internal swelling reduced rapidly and about 6 a. m. went to sleep and though breathing was somewhat irregular has been comfortable. Temperature at 4:30 a. m. 100.

April 6: Swelling about same, not softening externally or in mouth; urine 30 oz.; specific gravity, 1.010; sugar, trace; acetone, negative; odor less sweet, no frothing. About noon noticed a white spot on lower angle of scar (which has been healed for some time) has now become larger, about the size of a dime; opened, about 1 dram of pus obtained from cavity about one and one-half inches deep, after which says pain is less and movement freer than at any previous time. From this time on improvement was constant, though slow; there were one or two times when he seemed to get worse and swelling increased, but it was only passing. He was not able to be out to walk until May 4. The right shoulder was greatly emaciated, weak and drooping, but it now is rapidly coming back to normal. When first weighed after sickness, weighed 152 pounds, loss of 40 pounds. Is now back to 180. Urine has entirely cleared up; blood counts on the tenth day of sickness showed reds 4,500,000, whites 18,000; on the twentieth day, reds 3,250,000, and whites 24,000.

This case is of extreme interest, owing to the peculiar combination of conditions and as showing the various phases of the disease, and we can, I think, make some useful deductions from it. Had his condition warranted it, thorough opening in the beginning would have prevented a long and tedious sickness from which the outcome was a matter of great doubt. The several successive steps in the disease are unusually well shown, the extensive submaxillary swelling, followed by sublingual involvements, and again by pharyngeal extension, the sudden edema of the pharynx. I believe that the external opening and the possible relief of pressure by the several extensive bleedings from it may have had an influence on the recovery, but the prime factor was the fortunate pharyngeal opening which located pus. This recovery was a matter of

unusual good fortune and I hope I will never again have a case with counter indications for surgical treatment. The pus in this case showed a mixture of streptococci and staphylococci. A point of considerable interest in this case is the effect of the swelling, through its pressure on the spinal accessory nerve, on the right shoulder and shows how great the tension of the swelling is.

CASE 4.—Since writing the foregoing another case has come under my care which, I think, is entitled to classification under this heading. While making a social call upon a friend on the evening of May 21 he complained of a severe toothache in second molar on left side, from which he had that day had the filling removed because of pain. On May 24 he sent for me hurriedly at midnight. He had that morning had a hole bored in tooth, which liberated some gas but no pus. Relief followed until 4 p. m., when pain returned, at which time he felt both with his tongue and found a hard swelling in the floor of the mouth; pain spread all over face and down neck. About 8 p. m. noticed swelling at angle of jaw and of face and chin, which has increased rapidly since. When I saw him he was scarcely recognizable. The left submaxillary region was swollen, not as extensively as usual, but as hard as stone. Mouth opened about 1 inch and could be neither opened wider or shut; jaw pushed forward, giving an expression of deformity to whole face; could only utter sounds, no words; rectal temperature, 99.8; pulse 86; respiration 36, but free. Aside from pain in side of face he felt very comfortable. There was a soft swelling on the outside of the gum on left side extending from post end of alveolar process past the middle line, and on the inside a hard V-shaped swelling under tongue. Both these swellings were opened freely; a large amount of pus come from former, nothing but blood from latter. Recovery was prompt.

This case is an example of a reverse condition of the former ones, the swelling beginning on the inside, the result of an abscessed tooth, the infection extending around the post extremity of the alveolar process into the sublingual region and thence anteriorly along the sublingual gland and posteriorly out through the bucco-pharyngeal opening, already described, into the submaxillary region secondarily. The opening and drainage occurred before the infection had passed the ridge at the posterior attachment of the tongue and consequently before pharyngeal or laryngeal involvement. It was because of the history being so explicit as to the path of the infection and the short time elapsed, that no external opening was made.

I have reported these cases in detail in order to emphasize the lack of constitutional symptoms and the early and severe involvement of the air passages: the former appearing in no instance until after a longer time than usually suffices to end the disease one way or the other; in other words, the longer the disease lasts the more chronic its course, the more probability of constitutional symptoms from a toxemia, but also the longer a patient lives the greater the chances of recovery. It seems but logical, therefore, to assert that death is due to respiratory involvement and the part played by the infective agent from a constitutional standpoint is but secondary.

THE COMMONER INFLAMMATORY DISEASES OF THE EYE
AND THEIR DIAGNOSIS.*

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There are certain inflammatory affections of the eyeball that are not infrequently mistaken for one another, especially by those who are not brought in daily contact with them. An error made in diagnosis is not only likely to be of serious consequence to the organ affected, but is apt to prove humiliating to the physician or surgeon who first sees the case and does not at once institute the treatment that each demands. Under ordinary circumstances no great difficulty should be experienced in classifying these various affections and distinguishing between inflammations of the conjunctiva and iris and glaucoma, three conditions in which mistakes are of not uncommon occurrence. The treatment of each is so widely different that those remedies that are indicated in one are contraindicated in either of the others.

Speaking generally, these inflammations have characteristics which, to the casual observer, resemble one another so closely that the real disease is quite easily overlooked. It happens that the reddened appearance presented by the eyeball (due to the engorgement of otherwise invisible vessels on a background of the white sclera) is common to most inflammations of the eye. Not only in the superficial, but in the deep-seated ocular lesions as well, one or all the venous and arterial systems of the anterior segment of the globe become affected and more or less deeply tinge the otherwise whitish globe. Taking this clinical observation as a starting point and combining with it careful inspection of the eye itself, we may readily distinguish the various eye inflammations from one another and from affections non-inflammatory in character, by means of the following plan: 1. The eyeball is wholly or partially reddened without discomfort or other symptom. 2. The eyeball is reddened and uncomfortable, but without actual pain. 3. The eyeball is red and distinctly painful.

Taking these divisions up in the order outlined and referring briefly to the most important symptoms and characteristics of the various infections.

1. THE EYEBALL IS WHOLLY OR PARTIALLY REDDENED WITHOUT DISCOMFORT OR OTHER SYMPTOM.

Practically only one condition is included under this heading, viz., *subconjunctival hemorrhage*, which is not an inflammatory affection. There is no discharge from the eye and close inspection of it shows that the redness is localized as a deep red, smooth, uniform patch, obscuring the scleral vessels. Except in the recurrent type and in patients over 40 years of age (when Bright's disease, arteriosclerosis or organic heart lesions may be suspected) it is an innocent condition.

*Read before the Southern branch of the Chicago Medical Society.

2. THE EYEBALL IS REDDENED AND UNCOMFORTABLE, BUT THERE IS NO MARKED PAIN.

Under this head come: (1) Hyperemia of the conjunctiva. (2) Foreign bodies in the cornea and conjunctival sac. (3) Phlyctenules on the conjunctiva. (4) Acute and chronic conjunctivitis.

Of the various inflammations of the conjunctiva the *milder hyperemias* are largely the result of local conditions, such as errors of refraction and exposure to unhealthy surroundings, as wind, dust, smoke and impure atmosphere. These present no marked symptoms outside of itching, smarting, burning and foreign body sensations. The lining of the everted lids looks redder and rougher than normal. The redness eventually extends to the ocular conjunctiva, where the subconjunctival vessels, especially in the upper and lower cul-de-sacs, are enlarged. No secretion forms, except a little at the inner canthus, which occasionally glues the lid edges together in the morning. The more severe conjunctival inflammations, such as acute conjunctivitis, purulent conjunctivitis, etc., are due to an invasion of the mucous membrane by one or more of the micro-organisms that infect it. In the secretions of the normal conjunctival sac a variety of micro-organisms are found. Although a number of these bacteria (cocci or bacilli) are non-pathogenic in character, both they and the pathogenic varieties are generally present. Almost all of them are capable of setting up an inflammation under favorable conditions. Just what constitutes this favorable condition it is not possible to say in every instance, but we do know that an abrasion or some irritation of the mucous membrane is the most favorable aid to microbic propagation and its pathological results.

In most forms of *acute conjunctivitis* a microscopical examination of the discharge makes a diagnosis comparatively easy. For instance, in the variety known as acute contagious conjunctivitis, more easily recognized under the more common term of "pink eye," the Koch-Weeks bacillus is found in the secretions, while the pneumococcus and the diplobacillus of Morax-Axenfeld and the gonococcus of Neiser is found in other varieties of conjunctival inflammations.

The various forms of conjunctivitis have signs and symptoms similar to one another, the character of which depend largely on the severity of the inflammation. Usually there is no distinct pain, but smarting, burning and foreign body sensation, with a mucous and mucopurulent or purulent discharge which is found on the lid edges and at the inner canthus in sufficient quantities to glue the lashes together so that they must be washed apart before the eyes can be opened after a night's sleep. The injection and swelling of the conjunctiva, and a loss of its transparency is well seen on everting the lids and inspecting the posterior aspect of the globe. The conjunctival vessels on the globe are in most cases enlarged, particularly at the junction of the lids and eyeball in the retrotarsal folds. The conjunctival vessels run loosely in the conjunctival tissues, so that they may always be differentiated from the deeper vessels by the fact that they can easily be moved to and fro with the membrane itself.

Acute contagious conjunctivitis, commonly known as "pink eye," is usually met with in the spring and fall months, when, probably set up by wind and infected dust, it is frequently epidemic. In about two days after infection the ocular conjunctiva becomes deeply injected, giving it a bright red appearance, the redness extending to the margin of the cornea; hence, the name "pink eye." The conjunctiva is swollen and presents a succulent appearance. Photophobia and lachrymation are a source of discomfort to the patient, and pain is sometimes present, but not as severe as in the deeper inflammations of the eyeball. Slight hemorrhages are sometimes present on the ocular conjunctiva. The discharge, which is mucopurulent in character, is usually quite ropy and accumulates in the form of flakes in the retrotarsal folds. The lids stick together in the morning, while dried secretion is found adhering to the margin of the lids and to the eye-lashes. Sometimes there is a slight chemosis present, in which case the nutrition of the cornea is liable to suffer and ulceration may take place, not only from pressure on the vessels in that region, but following infection from the discharge retained in the sulcus. This affection is usually at its height at the end of the third day. It is sometimes accompanied by rise of temperature and other constitutional disturbances. The symptoms gradually subside after a week or ten days, but recovery may not take place until the end of two or three weeks.

Purulent conjunctivitis. It is sometimes difficult to draw a sharp line between the severer forms of acute contagious conjunctivitis and simple purulent conjunctivitis. In the latter, however, the chemosis is greater, while the discharge is more profuse and more purulent in character. The lids also become hard, tense and greatly swollen; the cornea is more often infected and ulceration more frequently occurs. The inflammation permeates the deeper structures and the subconjunctival tissue is infiltrated with inflammatory exudates. In the more serious cases of purulent conjunctivitis the gonococcus of Neisser is usually found. This disease attacks particularly the new-born (*ophthalmia neonatorum*) and the adult (*gonorrhoeal ophthalmia*). In *ophthalmia neonatorum* the infection usually takes place after the passage of the child's head through the vagina, so that the symptoms almost invariably show themselves during the first three days after birth. If it occurs at a later period the infection is probably not gonorrhoeal, but comes from soiled fingers, cloths, towels, sponges, etc. One eye is commonly affected one or two days before the other, although in some cases it is possible, if preventative measures are taken early enough, to prevent infection of the second eye. In the majority of cases, and especially in the severer forms, the gonococcus of Neisser is found to be present in the discharge. There is usually a history of the mother having suffered from a leucorrhoea for some time previous to the birth of the child, or of the husband having recently had gonorrhoea or gleet. The redness and discharge, which is slight at first, quickly increases and the lids become shiny and swollen, so puffed out that the upper lid falls down and covers the margin of the lower lid. The palpebral skin shortly after becomes tense and hard and of a dusky red color, so that it is almost impossible to evert either lid.

The conjunctiva is very red and much swollen, presenting a velvety appearance from the enlargement of the papillæ. This congestion rapidly extends to the ocular conjunctiva, which becomes intensely red and edematous, overlapping the margin of the cornea, so that the latter appears at the bottom of a pit surrounded by a hard rim of infiltrated and edematous tissue. The discharge, at first slight and yellowish in color, is soon very profuse and of a cream-like consistency. It is secreted rapidly, accumulates in the cul-de-sac and flows from between the lids onto the cheek. In consequence of hemorrhage from the ruptured capillaries the discharge may assume a yellowish-green color from admixture with blood. The disease usually runs its course in about six weeks. The chief danger is to the eyesight. The disease may affect the cornea, the vitality of which is always lowered, partly by strangulation of the vascular supply induced by the intense edema of the conjunctiva and partly from direct infection. When this occurs the surface of the cornea becomes hazy, dull and lusterless. This condition is soon followed by the formation of one or more ulcers, which spread rapidly, followed by perforation of the cornea into the anterior chamber and the formation of a dense white scar as the opening heals. Fortunately, in these days of antiseptic surgery, there is less danger of the child's eyes becoming infected than formerly. Where a discharge is known to exist regularly daily cleansings of the vagina should always be insisted upon. After the birth of the child the lids should be wiped dry with a piece of sterilized gauze, the eyes should be carefully opened, and, with a sterilized medicine dropper, one drop of a 2 per cent. solution of nitrate of silver should be carefully dropped on the exposed cornea. This is the method of Credé, which, if carefully carried out, will greatly minimize the danger of infection. By this method Credé reduced the percentage of cases occurring in the Leipsic Hospital from about 10 per cent. to 0.2 per cent.

Foreign bodies in the cornea or conjunctival sac are always to be suspected when the patient complains of constant scratching and a sensation of foreign body. The sac and cornea should be carefully scanned with a magnifying lens when those symptoms are present.

Phlyctenules of the conjunctiva are distinguished by the formation of small elevations or pimples on the conjunctiva. This is a disease of childhood and is frequently accompanied by an eczematous eruption behind the ear, on the face and at the corners of the mouth and nose. The child presents a strumous appearance. The phlyctenule consists of a small, solid, reddish elevation, made up of a collection of lymphoid cells beneath the epithelial layer of the conjunctiva. In a short time the epithelium becomes destroyed and ulcer forms. Fresh attacks frequently occur, new phlyctenules appearing on other portions of the conjunctiva before the first outbreak has disappeared. As a rule, the disease extends to the cornea, forming ulcers, the resulting scar from which is apt to interfere with vision. The patient suffers from intense photophobia and lachrymation. The child buries its head in the mother's lap or in a pillow and seeks dark corners of the room to get away from the light. The lids are tightly closed (blepharospasm) and any attempt to open them is met with decided resistance.

THE EYEBALL IS RED AND PAINFUL.

These symptoms are common to iritis, glaucoma, phlyctenules and ulcers of the cornea, scleritis and episcleritis.

In *iritis* the redness, beginning as a pinkish hue, is first confined to the corneal region of the ocular conjunctiva, although in a few days all the vessels of the globe are engorged and the eyeball assumes a dusky-red color. Pain, which is slight at first, soon becomes very severe and radiates over the brow and sometimes down the cheek. It is usually severe at night, keeping the patient awake. The eyeball becomes very tender and sensitive to the touch, probably due to the involvement of the ciliary body whose blood supply is intimately connected with that of the iris. There is also marked photophobia and a copious flow of tears. Discoloration, loss of luster and a swollen, muddy appearance of the iris surface are early manifestations of the inflammatory changes, a brown iris changes to yellow, while a blue iris takes on a greenish hue. The pupil is contracted and its usual reactions to light and accommodation are affected. This is due to a number of causes: The enlargement of the iris vessels; spasm of the sphincter of the iris; exudate into the substance of the iris; or, as usually happens when improperly treated, adhesions of the iris to the anterior capsule of the lens. Exudates are almost invariably present on the posterior and anterior surfaces and margins of the iris and are of glue-like consistency. This is what causes adhesions to form between the iris and lens (posterior synechiæ) and is the chief cause of blindness from iritis. The pupil is often bound down to the lens about its whole circumference (ring synechia, exclusion of the pupil) so that it becomes immovable; or adhesions takes place at various points along the pupillary margin, causing the pupil to contract and dilate irregularly when exposed alternately to deep shadow and strong illumination. This irregular dilation of the pupil is shown when a mydriatic is instilled into the eye. Eventually, the pupillary space may become covered with an exudate, and if this be dense, vision is very seriously impaired. This condition is known as occlusion of the pupil.

It not uncommonly happens that iritis is mistaken for conjunctivitis or vice versa, a mistake which may prove very serious, as it involves the eyesight of the patient. An error in diagnosis may be avoided by observing the following points of difference between these common forms of ocular inflammation:

IRITIS.

Pain.—Often severe; worse at night; felt in and above the eye.
 Redness.—Especially marked as a zone about the corneal margin.
 Pupil.—Contracted, sluggish or immobile; iris altered in color.
 Vision.—Affected.
 Lids.—Non-adherent.
 Discharge.—Watery.
 Photophobia.—Marked.

CONJUNCTIVITIS.

Pain.—None, but some smarting, burning, and sensation of foreign body.
 Redness.—More general.
 Pupil.—Pupils and iris not affected.
 Vision.—Not affected.
 Lids.—Adherence of lids.
 Discharge.—Mucous or muco-purulent.
 Photophobia.—None.

Phlyctenules of the cornea present symptoms very similar to those described under a similar condition of the conjunctiva, viz., intense photophobia, lachrymation, blepharospasm.

Ulcers of the cornea. The detection of corneal ulcer presents a few

difficulties if it is at all extensive, although small and superficial ulcerations are easily overlooked. If the reflection from a window be allowed to fall upon the affected cornea the image of the cross bars will appear broken or irregular. One of the surest means of detecting the presence of an ulcer is to allow a few drops of a 2 per cent. solution of potassium fluorescein to flow over the surface of the cornea (fluorescein, gr. viii; liq. potassæ, ʒss; aqua dest., ʒj). This solution renders the denuded portions of the cornea green or greenish-yellow and accurately maps out the limits of the scar. Corneal ulcers are usually due to the entrance into the corneal substance of some one of the micro-organisms productive of inflammatory conditions. The virulence of the infection depends upon the nature of the bacterium, whether it be the gonococcus, streptococcus, staphylococcus, pneumococcus or other germ. Opacities of the cornea invariably follow ulcers in this situation, the resulting scar materially affecting vision, the defective sight depending upon the situation and density of the cicatrix.

Glaucoma. This disease is essentially due to a damming or blocking of the drainage from the interior of the eye. The chief lymph stream secreted in the interior of the eye proceeds over the lens through the zonula of Zinn into the posterior chamber, past the margin of the iris, through the pupil into the anterior chamber, traverses the latter to reach the angle of the anterior chamber formed by the junction of the iris and sclera, passes through the loose tissue at this point and by diffusion and filtration is taken up by Schlemm's canal and from this canal into the external lymph channels.

Obstruction to the steady escape of the intraocular fluids at any point in this drainage system or any undue increase of the fluids themselves may produce glaucoma. Probably the most important obstruction to the exosmosis is at the angle close to Schlemm's canal. In many excised eyeballs affected with glaucoma the periphery of the iris has been found adherent to the cornea so as to prevent the flow of the fluids in the canal of Schlemm.

Acute glaucoma, with which we have to deal, appears in inflammatory outbursts, attended by severe pain in and congestion and redness of the eyeball. Associated with these symptoms is temporary impairment of vision, usually the first symptom, the blurring lasting for a short time, then followed by the vision clearing again. It is also attended by loss of focussing power, and necessitates the frequent changing of glasses, as it usually shows itself in persons over 40 years of age. During these periods the patient notices rings (halos) of various colors about gas jets or other flames. The pupil is dilated and the anterior chamber becomes shallow. Eventually the loss of vision becomes permanent. The pain which is transient and slight at first, soon becomes severe and more constant and as the disease progresses, almost unbearable. It is referred not only to the eye itself, but to the region surrounding the eye, radiating over the brow to the side of the nose and cheek and is very apt to be mistaken for facial or supraorbital neuralgia. The eyeball, slightly congested at first, soon becomes plainly red and inflamed, especially in the zone surrounding the cornea (ciliary region), while the scleral vessels

are dilated and tortuous. The cornea is hazy and has a breathed-on appearance and finally becomes more or less insensible to the touch. The tension of the eyeball is distinctly raised, especially at each of these attacks, often returning to normal during their subsidence, but finally the eyeball remains distinctly harder than normal.

On examining the interior of the eye with the ophthalmoscope very little, if any, abnormality can be detected in the early stages, although during an attack pulsation of the arteries may be perceived. In the late stage of the disease cupping of the nerve will generally be noticed. Usually the disease progresses until it ends in complete disorganization of the structures of the globe. The lens becomes opaque, the iris atrophies and hemorrhage takes place in the interior of the eyeball. Bulging of the coats of the eyeball (*staphylomas ectasia*), especially in the neighborhood of the ciliary body, frequently occur from the continuous increase of tension, until the eye feels and looks as if it were going to burst. Indeed, removal of the globe or its contents is often the only measure that gives the patient relief from his intense suffering.

Although these signs and symptoms resemble one another very closely so that the diagnosis is apparently attended with some difficulty, there are certain characteristics which each disease holds particularly as its own and which serve to distinguish it from other inflammatory affections. If these are given careful consideration the observer will experience little trouble in arriving at a correct diagnosis of each case as it presents itself.

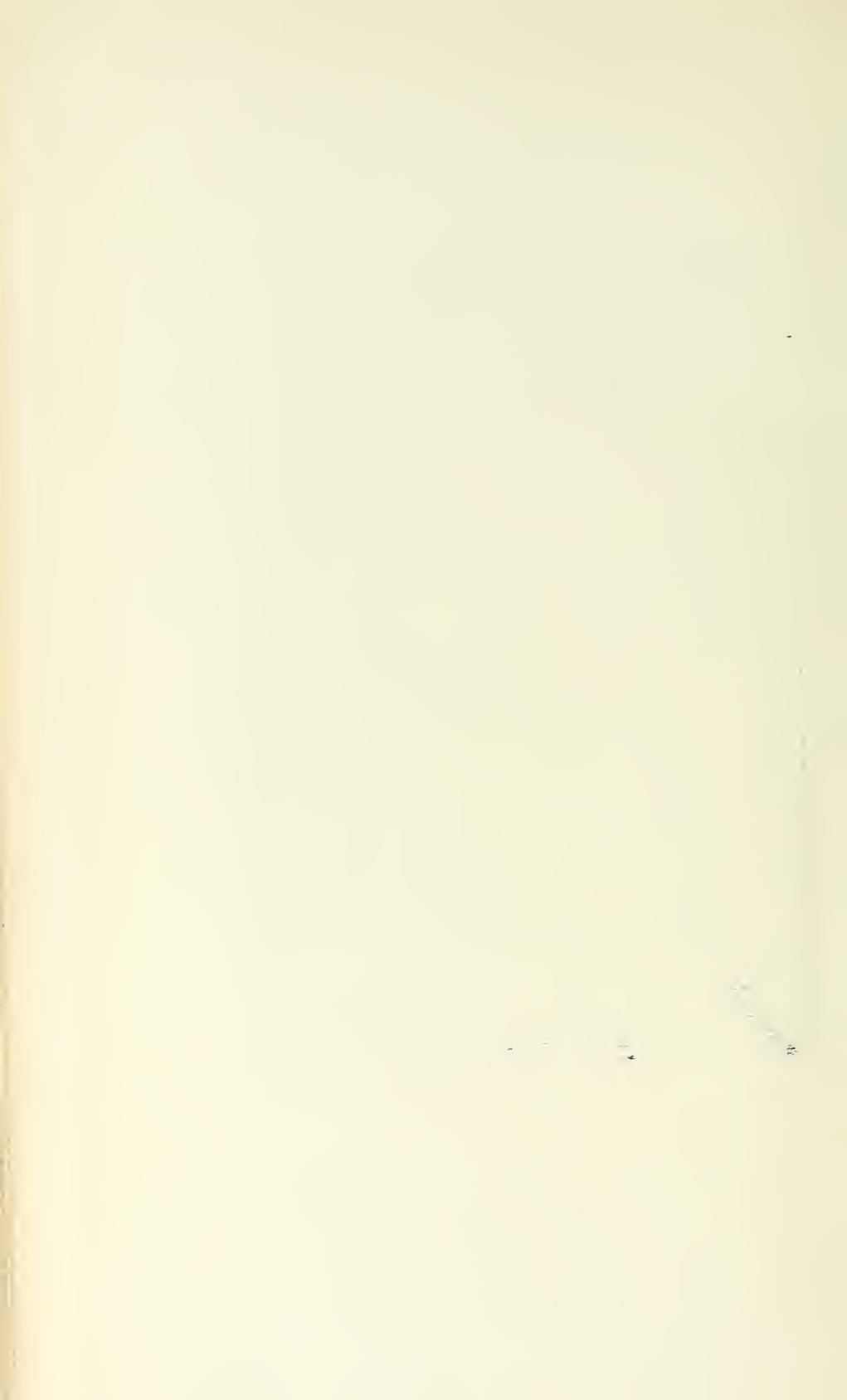
The following table will be of assistance in classifying the various ocular inflammations and will show at a glance the main points in diagnosis:

EYEBALL WHOLLY OR PARTIALLY REDDENED WITHOUT DISCOMFORT OR OTHER SYMPTOMS.	EYEBALL REDDENED AND UNCOMFORTABLE BUT THERE IS NO MARKED PAIN.	EYE PAINFUL AND RED.
1. <i>Subconjunctival hemorrhage.</i> (a) Redness localized as a deep red, smooth, uniform patch obscuring the scleral vessels. (b) No discharge.	1. <i>Hyperemia of the Conjunctiva.</i> (a) Everted lids redder and rougher. (b) Burning, smarting, itching. (c) Foreign body sensation. (d) Discharge slight. 2. <i>Foreign Bodies in Cornea or Conjunctival Sac.</i> (a) Constant scratching. 3. <i>Phlyctenules in Conjunctiva.</i> (a) Small pimples on Conjunctiva surrounded by patch of blood vessels. 4. <i>Acute and Chronic conjunctivitis.</i> (a) Smarting, burning and foreign body sensation. (b) Mucous, muco-purulent or purulent discharge. (c) Adherence of lids in morning. (d) Injection and swelling of conjunctiva.	1. <i>Iritis.</i> (a) Ciliary injection and redness. (b) Photophobia marked. (c) Copious Lachrymation. (d) Tenderness. (e) Pupil contracted and sluggish to light and accommodation. 2. <i>Glaucoma.</i> (a) Increased tension of the globe. (b) Attacks of pain, neuralgic in character at first, later more constant. (c) Lowered vision. (d) Pupil dilated. (e) Shallow anterior chamber. (f) Hazy cornea. 3. <i>Phlyctenules of the Cornea.</i> (a) Disease of childhood. (b) Intense photophobia and blepharospasm. (c) Lachrymation. 4. <i>Cornical Ulcers.</i> (a) Loss of substance. (b) Solution of fluorescin stains ulcer green.



DR. ADOLF MEYER

[The Noted Eastern Psychiatrist who will address the Illinois State
Conference of Charities at Rock Island on October 12 next, on
the subject: "How Shall the Problem of the Public
Care of the Insane Be Solved?"]



ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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OCTOBER, 1908.

ILLINOIS COMMISSION TO INQUIRE INTO THE CONDITION OF THE BLIND.

At a meeting of the State Board of Charities held July 16, last, a commission was appointed to inquire into the condition of the blind in Illinois with a view to formulating plans for the employment of the adult blind and for improving the efficiency of the state care in other particulars. The following were appointed members of this commission: Clara P. Bourland, of Peoria, and Dr. John T. McAnally, of Carbondale, representing the State Board of Charities; George W. Jones, superintendent Illinois State School for the Blind, Jacksonville; C. D. Babb, of Homer, Trustee of the State School at Jacksonville; Joseph E. Otis and E. J. Nolan, of Chicago, trustee of the Illinois Industrial Home for the Blind at Chicago, Mr. Nolan also representing the blind people of Illinois; Mrs. Alice E. Bates, representing the Chicago Woman's Club; Dr. William H. Wilder, of Chicago, representing the Illinois Charitable Eye and Ear Infirmary, at Chicago; Chester M. Dawes, representing the Chicago Board of Education, and Dr. Elmer E. Hagler, of Springfield, representing the Illinois State Medical Society. Mrs. Bourland is chairman. Dr. Hagler is secretary.

The first meeting of this commission was held in Jacksonville, September 17, at the School for the Blind. Professor Wilder addressed the commission, and, from statistics presented, demonstrated that from 40 to 45 per cent. of all cases of blindness were absolutely preventable; and notwithstanding that fact, blindness is increasing in all civilized countries. The largest amount of blindness, he said, comes from ophthalmia neonatorum, or blindness of the newborn. This disease, which is easily preventable, causes from 25 to 30 per cent. of all the blindness. Dr. Wilder also called attention to the prevalence of trachoma in the southern part of the state. Following his lecture Professor Wilder held an informal clinic, exhibiting chiefly children in the school who were suffering from the results of ophthalmia neonatorum and trachoma.

Mr. Jones, head of the State School for the Blind, gave a résumé of the work done in that institution and of the great need of improvement.

Mr. Nolan, blind totally since he was 2 years old, spoke of the work of the Industrial Home for the Blind. What was accomplished, he explained, was accomplished against difficulties owing to the limited equipment and funds.

Miss Bates, of the philanthropic department of the Woman's Club, Chicago, wrote a letter and outlined, as a result of her personal investigation, special work that is being done for the blind in eastern cities and in Chicago.

A subcommittee of three was appointed, to report at the next meeting, consisting of Dr. Wilder, who is to report suggestions for the prevention of blindness and to recommend the enactment of needed laws; Mr. Jones, to report on the needs of his school and to recommend more efficient legislation; and Mr. Nolan, to make recommendations and suggest such laws as will improve the conditions surrounding the employment of the adult blind. The commission decided to devise a method for taking a census of the blind in Illinois. It is estimated that there are about two thousand blind in the city of Chicago alone. It is probable that the census plan will be submitted to the next legislature, as the present commission is without funds for that purpose. In fact, the commission has no appropriation of any sort to draw from.

ILLINOIS STATE CONFERENCE OF CHARITIES MEETING.

Illinois physicians will find much to interest them in the program of the Illinois State Conference of Charities to be held in Rock Island October 10-13, inclusive. The chief medical attraction, not to mention the many other non-medical features of the program, is Dr. Adolf Meyer, director of the New York State Pathological Institute, who recently has been selected to be professor of psychiatry in Johns Hopkins University and director of the clinic in psychiatry in Johns Hopkins Hospital.

THE INSANE.

Speaking of Dr. Meyer's subject the Conference announcement, just from the press, says, under the heading "The War on Insanity":

Insanity is a dominant growing curse in Illinois as elsewhere. This state during the last two years has made giant strides in advance in the care and treatment of its insane. The general public, even many political office holders, have what is believed to be a wrong idea about this disease. Much educational work has been done by the State Board of Charities and its friends during the last two years. The conference, supplementing this work, has secured the consent of Dr. Adolf Meyer to speak Monday, October 12, at 8 p. m. at the Rock Island conference on "How Shall the Problem of Public Care of the Insane be Solved?" Dr. Meyer formerly was at Kankakee. He knows the Illinois situation. He recently accepted the chair of psychiatry in Johns Hopkins University and the directorship of the psychiatric clinic at Johns Hopkins Hospital, both in Baltimore, Md., under the \$500,000 donation of Mr. Henry Phipps. Dr. Meyer leaves the directorship of the New York State Pathological Institute to undertake the new work. Thus it will be seen that this scholarly gentleman is fitted to advise the people of Illinois as to the proper, practical method of finally solving the problem of the care of their public insane.

EPILEPSY AND FEEBLEMINDEDNESS.

Regarding epilepsy and feeble-mindedness the announcement says:

Classified with insanity are epilepsy and feeble-mindedness. Illinois stands in crying need of a colony institution for epileptics. The last legislature could not see its way to appropriate the \$265,000 recommended by the State Board of Charities to establish such an institution. This fact only emphasizes the need of urging the next legislature to measure up to the public demand for a proper place for epileptics. Eight other states have epileptic colonies. Dr. George A. Zeller, superintendent of the Illinois General Hospital for the Insane, will address the conference, Monday, October 12, 9 p. m., on "The Modern Treatment of the Epileptic and the Insane." He has both classes at his institution. The lecture will be illustrated by stereopticon.

Dr. W. H. C. Smith, president of the conference, formerly president of the American Association for the Study of the Feeble-minded, will make an address, Saturday, October 10, at 8 p. m., on "History of the Care of the Feeble-minded in Illinois." This state has much to do for the feeble-minded before its service compares favorably with that of progressive states.

TUBERCULOSIS.

Tuberculosis is given a prominent place on the program. The announcement reads:

This disease is the terror of the world to-day. As this pamphlet is circulating the International Congress on Tuberculosis is in session in Washington. The fight on "the great white plague" is as wide as the civilized world. Eleven states of the Union have established state sanatoria for consumptives. The last Illinois General Assembly declined to appropriate \$150,000 for such an institution for the treatment and cure of early cases of consumption and as an agent for distributing information how to prevent and how to treat consumption. However, the legislature passed a bill authorizing cities and villages to create local sanatoria for consumptives and to raise money therefor by taxation. Mr. Alexander Wilson, formerly superintendent of the Chicago Tuberculosis Institute, now superintendent of the Chicago Bureau of Associated Charities, will outline a "Working Tuberculosis Program for Illinois." Dr. James W. Pettit, president of the Illinois State Medical Society, and head of the Ottawa Tent Colony for the treatment of pulmonary tuberculosis, will speak on "The Local vs. the State

Sanatorium for the Treatment of Tuberculosis." If possible, one of the noted delegates to the International Congress on Tuberculosis at Washington will be secured for an address.

The section on tuberculosis holds forth on Monday, October 12, at 2 p. m.

BLINDNESS.

A new commission has been appointed by the State Board of Charities to inquire into the condition of the blind in Illinois and to recommend such additional facilities as the state should provide for the employment of the blind and the education of those not now enjoying such facilities. In view of the work of this commission special interest attaches to the address by Prof. George W. Jones, superintendent of the Illinois State School for the Blind, at Jacksonville. His subject, Sunday, October 11, 3 p. m., is: "Duty of the State Toward the Blind." Dr. J. T. McAnally, of the Board of Charities; Dr. W. H. Wilder, of Chicago, and Dr. Elmer E. Hagler, of Springfield, are the medical members of the new commission, whose work is described elsewhere in this issue of *THE JOURNAL*.

EXHIBITS.

In the Rock Island Public Library, during the Conference, there will be an exhibition representing the work done by inmates in the state charitable institutions; also a tuberculosis exhibit.

NON-POLITICAL AND NON-PARTISAN.

The Conference of Charities is a non-political, non-sectarian organization composed of public spirited men and women who are interested in the welfare of the dependent, delinquent and criminal portions of the state population. The announcement states:

Special pains have been taken in preparing the program so that the dominant features of charity may be set clearly before the people of the state in the hope that they, by word and deed, will continue to co-operate with the conference in its voluntary service at a time when there is good promise that the complete regeneration and rehabilitation of the state charitable institutions, already well advanced, are to be accomplished by a friendly legislature this coming winter.

NEW PSYCHOPATHIC HOSPITAL DEDICATION.

A side feature is the inspection of the new Psychopathic Hospital at Watertown, suburban to Rock Island. This institution has a complete hydrotherapeutic outfit. A plan now is on foot to dedicate this new hospital on Saturday afternoon, October 10, and to invite Governor Deneen, Dr. Frank Billings, president of the Board of Charities, Dr. H. Douglas Singer, director of the State Psychopathic Institute, and Dr. J. W. Pettit, president of the Illinois State Medical Society, to make addresses. This would be an especially desirable feature for physicians, since it would afford them an opportunity to get a comprehensive idea of the new way of handling the acute insane in Illinois, in spite of the fact that the last legislature forbade clinics prepared by the State Board of Charities for the education of general practitioners at the district hospitals for the insane.

EDITORIAL CORRESPONDENCE.

HEIDELBERG, Aug. 1, 1908.

DR. GEORGE E. BAXTER, Assistant Editor, Chicago, Ill.

Dear Doctor:—In this letter I will take up briefly the other departments of the University not mentioned in my letter appearing in THE JOURNAL of September. First, I must mention that, compared with many of our American institutions, nearly all of the German universities are poor of purse and, if judged upon the buildings and equipment of many of the departments, do not measure up to the standards of American universities and hospitals where money has been expended with a lavish hand. The fact is that Germany, although showing remarkable improvement in her financial condition since the War of '71, is still poor when compared with France, England and America. Moreover, the maintenance of her immense standing army is plunging her still deeper in debt. She is, however, rich in the mental equipment of her professional teachers and in the consideration shown to science and scientific workers. Her millionaires are few and those she has do not seem to have expended their wealth in endowing the universities to the extent that this has been done in America. The University of Jena celebrated this year the three hundred and fiftieth anniversary of its founding and it was indeed a remarkable occasion for many reasons. Among these was the dedication of the Central University Building, erected at a cost of a million and a half (over \$350,000) of marks, the funds being contributed for the most part by private individuals. This building was not the gift of a modern Croesus, but the list of donors included the optical company founded by Carl Zeiss; the City Savings Bank; the publisher, Fischer; the glassmaker, Schott, and last and greatest, Ernst. Abbe, the physicist, who gave nearly his entire fortune to the completion of the work, reserving for himself merely a minimum sum to enable him to live the few remaining years of his life. Another contributor of especial interest to us was a former factory worker in Jena, who had migrated to America and became rich and on this occasion gave thirty thousand marks for the betterment of the new university. Like the University of Jena, the older University of Heidelberg, nearly 525 years in existence, must be considered poor. The buildings in the academic department especially are old, badly lighted and ventilated and located in a poor part of town. The University Library is an exception, being a beautiful building of very modern construction. The medical and surgical clinics are located in the best part of the city, and while the buildings are new as compared with the academic buildings, yet the most of them are not up-to-date in construction or equipment. This is especially true of the surgical clinic, which has overgrown the building originally provided and now occupies a number of barracks of temporary and flimsy construction. To reach the operating amphitheater all patients must be placed on stretchers and carried by two or more attendants up and down one or more flights of stairs and often exposed to the weather. The professors appreciate the disadvantages under which they labor, and told me that they expected in

the very near future to have entire new buildings constructed. Any one familiar with government affairs in Germany will understand that it may be five or ten years before this hope is realized. If there is criticism as to the buildings of the surgical clinic there can be none as to the scientific work carried out and the excellent instruction given by Professor Narath, who was called to the surgical chair from Holland in 1907 as the successor of von Czerny, who had held the chair since 1876 and who in turn has succeeded Gustav Simon, 1868-1876; Weber, 1864-1867, and Chehlius, 1818-1864. Professor Narath is one of the youngest living disciples of Billroth and is a credit to his great master. Unfortunately, Professor Narath was prevented by physical disability from giving the courses. His regular student course, however, was continued and all visitors were made welcome. I have never known an instructor of greater teaching ability. The youngsters were uniformly treated with consideration and helped in the investigation of a case. There was no badgering nor assumption of superior wisdom on the part of the professor. Their feeling of respect and affection for him was shown when he made his final remarks at the close of the semester. About 4,100 operations are performed in the course of a year. The aim of the clinic is the scientific study of surgical diseases and no particular effort is made to secure favorable statistics. Many cases are admitted that elsewhere might be refused operation for fear of ruining the record of the operator. Operations on the digestive tract are frequent and not always successful. Hernia operations are frequent according to the original Bassini method and with practically no failures. Gall bladder operations are common and the viscus is always removed. Goitre operations are numerous and are usually done under cocain anesthesia. Appendicitis operations are relatively infrequent. Possibly this is due to the habits of the people. Every bank and nearly all the business houses in Heidelberg close at noon daily. The whole force goes to lunch and returns for business at 2 or 3 o'clock. The law requires all stores to be closed at 8 p. m. Possibly appendicitis would not be so frequent in America were the people to give themselves time to masticate their food properly. Gloves are seldom used in operating, yet there is practically no suppuration. Very fine silk for ligatures and sutures is the favorite material. Catgut prepared by a simple process by the nurses is used at times.

Harvest was in progress in July and because of this a number of cases of division of the tendo achillis were in the wards, caused by the reaper's sickle, which is still almost universally used for cutting grain in Baden. The skiagram is employed in a majority of the cases. Surgery was also exemplified in excellent courses by Professor Jordan in the Children's Hospital and by Professor Vulpius in the Orthopedic Department. One of the most satisfactory courses given was that of Professor Hammer in the newly constructed building devoted to physical methods of healing, such as baths, electricity, massage, hot and cold water and steam douches, poultices, wadding, and many other methods and appliances which have

until recently everywhere been the domain of the charlatan or the layman. Professor Credé recently said: "If physicians were better versed in hydrotherapy and other physical remedies the field of operation of many quacks would be greatly curtailed." Some forty-three different procedures are mentioned in the price list. The list of procedures is given herewith:

BATHS AND PROCEDURES WHICH AS A RULE ARE GIVEN ONLY ON THE RECOMMENDATION OF THE PHYSICIAN.

A. *Hydriatic Procedures*.—1. Steam bath. 2. Hot-air bath. 3. Local hot-air treatment. 4. Salt bath. 5. Pine needle bath. 6. Sulphur bath. 7. Chalybeate bath. 8. Oak bark bath. 9. Mustard bath. 10. Carbonic acid bath. 11. Mud bath, (a) local; (b) complete. 12. Medicated baths (clover, oat-straw, timothy, etc.). 13. Sand bath, (a) local; (b) complete. 14. Douches (fan shape). 15. Alternating douches. 16. Steam and hot-air douches. 17. Foot baths. 18. Alternating foot baths. 19. Shower baths. 20. Sitz baths. 21. Full baths. 22. Half bath. 23. Ablutions. 24. Frictions. 25. Slappings. 26. Universal packs.

B. *Electric Procedures*.—1. Static douches. 2. Arsonvalisation. 3. Electric light baths. 4. Electric radiations. 5. Electric water baths (galvanic, faradic). 6. Sinusoidal bath. 7. Four-cell bath.

C. *Various Forms of Roentgen Therapy*.

D. *Massage*.—1. Partial massage. 2. Complete massage. 3. Faradic massage.

E. *Photographic Roentgen Pictures*.—1. Roentgen treatment.

F. *Inhalation*.

G. *Sunlight Baths*.

Here these methods are applied in a scientific manner and are thus, of course, of much greater benefit than when given haphazard by untrained or ignorant persons. That there is benefit in these methods of treatment has long been known, but the practice of the healing art has so long been limited to the simple giving of medicine that they have been unfortunately neglected. It is to be hoped that the example of Heidelberg in taking up this reform will be followed by schools of medicine in every land. Valuable courses were given also in the eye, ear, nose, throat, venereal and medical departments, but as I did not follow these I can not speak more definitely concerning them.

The close of the courses was celebrated by a *Commers* at one of the leading hotels attended by most of the professors and physicians. A German *Commers* is like most of the Teutonic functions, a rather solemn affair, but in many ways very enjoyable, and this was no exception to the rule, as it gave an opportunity of meeting the participants in the courses in a friendly way and of saying farewell to our friends in Heidelberg. No speeches were delivered, no songs were sung, but all departed home sober and orderly about midnight. As a result of our short visit we shall always have a profound respect for the old University and a sincere wish for her continued success.

GEO. N. KREIDER.

COUNTY AND DISTRICT SOCIETIES

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Meeting of June 10, 1908.

A regular meeting was held June 10, 1908, with Dr. A. Belcham Keyes in the chair. Dr. Frederick G. Harris read a paper entitled, "The Clinical Value of the Spirochaeta Pallida, with Demonstration of the Living Organism." Dr. W. J. N. Davis read a paper entitled, "Intestinal Exsection (15 feet) following Perforation of the Uterus by the Curette; Recovery."* This paper was discussed by Drs. Heinecke, Young, and in closing by the essayist. Dr. A. J. Ochsner read a paper on "Hospital Construction," which was illustrated by numerous stereopticon slides.* The paper was discussed by Drs. Young, Stremmel, Keyes, Steele, Turek, Fisher, and in closing by Dr. Ochsner. Dr. Alexander Aurelius read a short paper entitled, "Operating on the Appendix from the Left Side." This paper was discussed by Dr. Heinecke. Adjourned.

Dr. Werelius read a paper entitled, "Operations on the Appendix from the Left Side."

DISCUSSION.

Dr. A. P. Heineck:—The suggestion made by Dr. Werelius does not seem impracticable to my surgical judgment. Now that it is generally admitted that appendicitis is essentially a surgical condition; and that the health and lives of patients, who have or who have had appendicitis, demand the removal of this organ, it is expedient that the technic of its (appendix vermiformis) operative removal be simplified, be perfected, in all its details. One of the most important steps of appendectomy is the exposure of the appendix.

Many different incisions have been suggested each of which has its advantages in certain cases. The median incision is the only one which I wish to condemn; it is not founded on anatomical grounds, it renders difficult the locating and the delivery of the appendix. The abdominal incisions which we employ for appendectomy may be divided into simple and compound. In the simple type, all the layers of the abdominal wall are divided in the same plane; in the compound type, the lines of the incisions cross as in the McBurney incision or they may be parallel but not coincident as in the incision practiced by Jalaguier. I usually employ the latter; keeping in mind the line of the deep epigastric vessels. They run in an approximately straight course from their origin from the external iliac vessels just above Poupart's ligament to the umbilicus. The gridiron incision we also have employed with great satisfaction.

These different incisions can be made, by the operator, when he stands on the left side of his patient as conveniently as when he stands on the patient's right side. This I can assert positively, as I frequently have been compelled, for the convenience of my classes, to operate while standing on the left side of the patient.

The appendix vermiform is usually an intraperitoneal organ; at times, it is extraperitoneal partly or entirely so. Whether, the appendix be intra- or extra-peritoneal, it is reasonable to assume that it can as easily be exposed when the operator stands on the left side of his patient as when he stands on the latter's right side. Standing on the left side, he can, in many instances, more easily call to his service the sense of sight as well as that of touch.

*For paper and discussion see pages 450, 455.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, March 11, 1908.

A regular meeting of the society was held March 11, 1908, with the president, Dr. A. H. Andrews, in the chair.

CYST OF EPIGLOTTIS.

Dr. Jos. C. Beck presented a child, who, when first seen, was cyanotic, spoke with difficulty and presented all the symptoms of a laryngeal obstruction, a condition which was said to have existed since birth. A tumor was palpable in the region of the epiglottis. A laryngoscopic examination was impossible. A puncture of the tumor yielded nothing. A tracheotomy gave relief from the distressing respiratory symptoms. On incising the tumor, a gelatinous fluid was evacuated. The cyst led into the fossa pyriformis and was attached to the epiglottis. A cautery point was passed into the cyst cavity and it was cauterized thoroughly. The child improved and made a good recovery. Speech is normal. At the site of the tumor is an infiltrated mass.

EXCISION OF JUGULAR BULB.

This patient, shown by Dr. Beck, had typical sinus thrombosis, with 40,000 leucocytosis and symptoms of thrombosis of jugular vein, extending down to the level of the thyroid cartilage. The sinus was excised to midway between the torcula and transverse sinus, to back of the mastoid, and down to the formation of the jugular bulb after the method of Alexander.

DISCUSSION OF DR. BECK'S CASES.

Dr. George E. Shambaugh:—These cases of thrombosis of the bulb of the jugular present one of the most difficult problems in the surgery of the temporal bone. It may be difficult in the first place to determine in which cases one is justified in interfering with a thrombus in the bulb, and in the second place the operation required to expose and clean out the jugular bulb may in certain cases present almost insurmountable difficulties on account of the high position of the bulb. I have some preparations where, for example, the upward bulging of the dome of the jugular bulb extends through the superior wall of the petrous portion of the temporal bone. In such cases the exposure and complete cleaning out of the bulb necessitates an operation so extensive that in itself it may be much more formidable than the danger from the thrombus.

The mere presence of a thrombus in the jugular bulb is not in itself sufficient reason for the undertaking of an operation that is always difficult, and may be quite formidable. Whether the thrombus in this locality ought to be removed should depend upon whether it is infected or not infected. If it can be determined at the time of the primary operation on the lateral sinus that the thrombus in the bulb is an infected one, that is, if a foul smelling, broken down thrombus extends up toward the jugular bulb, I believe we are justified in carrying on the operation so as to expose and clean out the bulb. If on the other hand a firm and to outward appearance non-infected thrombus is found extending into the bulb of the jugular, I believe the conservative attitude is the correct one, for should it turn out that the thrombus is as it appeared to be, not infected, experience has shown that the patient is quite safe with the thrombus left alone, and in this way many of these cases can be spared the dangers of a difficult operation. On the other hand, should it turn out that in spite of its normal appearance the thrombus in the bulb is an infected one, which is also possible, though perhaps not probable, then the subsequent history will show a continuation of the septic temperature curve and under such circumstances one is again justified in undertaking the operation on the bulb. In that way alone unnecessary operations can be avoided.

The anatomical variations in the position of the jugular bulb are the most striking. In some cases the bulb is so slightly developed that it can be readily cleaned out by extending a eurette forward along the course of the sinus. I have a number of preparations where the dome of the bulb produced a marked

bulging in the floor of the tympanum, and in these cases the bulb could be easily opened and cleaned out from this locality, as has sometimes been recommended. The operation that seems to make it possible always to reach the bulb and effect its exposure is the operation recommended of chiseling away that portion of the temporal bone lying along the anterior margin of the forward extension of the sinus until the bulb is reached. The two dangers in this operation appear to be, in the first place, the injuring of the posterior semicircular canal if we chisel too high, and the cutting off of the facial nerve if too thick a piece of bone is taken off in front of the sinus.

Dr. Frank Allport:—If the thrombus extends back in the direction of the torcula, it had better be left alone. If the thrombus is infected, curette out all the infected portion, going back as far as necessary. That part of the thrombus extending down toward the jugular vein is usually infected and it would not be well to leave it. If I could not curette it without getting severe hemorrhage, I would plug it up and remove the jugular vein, placing the first ligature as far down as possible and get beyond any infectious focus, and eventually I would expect the jugular vein up beyond the facial vein. I do not believe that the Alexander operation is necessary, and it is being more or less abandoned for that reason. The bulb can be eurented thoroughly without so much risk.

Dr. A. H. Andrews:—I recall a number of cases in which I cleaned out the lateral sinus as best I could with a curved curette, ligated the jugular, cut it off back where it was not necessary to check hemorrhage and the patients got well. I felt sure that had I undertaken to clean out the jugular bulb, the patients would not have stood anywhere near the chance of recovery that they would without that formidable procedure.

Dr. Beek:—I do not believe in leaving an infectious area anywhere near the field of operation, especially when it can be reached. At least the attempt should be made; it is anatomically and surgically possible to remove it. When the clot is infected, it should be taken out; if not, it should be left alone. Free bleeding should be obtained behind as well as below; then you are sure that all of the thrombus has been removed. Puncture and drainage of the bulb through the middle ear is possible, but should not be advised as a routine procedure.

TABES WITH LARYNGEAL CRISES.

OTTO T. FREER, M. D.

DISCUSSION.

Dr. Wm. Healy:—The case illustrates that tabes is not only a sensory disease, but partakes of motor qualities. Dr. Harland, of Philadelphia, examined 30 cases of tabes, and found no case of crises or paralysis of the intrinsic muscles of the larynx. This is the first well marked case of laryngeal crises I have seen in 200 cases. Of 1,270 cases recorded in the literature, 4 per cent. had crises. Starr saw 450 cases, with 2 per cent.; Grosvenor saw 251 cases, with 10 per cent. of crises. Other crises are intestinal, rectal, bladder, renal, ureteral, testicular, clitoroidal and cardiac, simulating angina pectoris.

The frequency of paralysis of intrinsic muscles of the larynx varies from 14 to 26 per cent. The abductors are nearly always affected first, but their relationship to the two sides varies greatly. Gerhardt reports 11 cases of posticus paralysis, 5 bilateral and 3 cases in which all the muscles supplied by the recurrent laryngeal nerve are affected. This condition may appear in the very early stage, the preataxic. Semon saw a case in which for two years it was the only symptom of tabes; and it may not appear until the last stage, and very frequently in connection with gastric crises.

Oppenheim found that pressing on the sides of the hyoid bone frequently brings on an attack of laryngeal crises in patients subject to it.

Most authors maintain that practically always the nucleus ambiguous of the 11 and 10 nerve is affected, but others found this not to be true, but found the lesion in the root fibers running up through the medulla or in the vagus itself.

Oppenheim saw one case in which the muscles showed degeneration and none of the nerve fibers or nucleus.

The prognosis of this symptom of tabes is very bad; it may necessitate an operation. Semon points out that in time paralysis of the adductors takes place and the patient then is relieved of all further trouble. He also points out that an operation in such cases is rather dangerous on account of the trophic disturbances which frequently take place in tabes, and he has seen sloughing and failure of the wound to heal after tracheotomy. The treatment generally recommended is painting the larynx with a strong solution of cocaine and giving bromids and codein internally.

Dr. J. Holinger:—Some authors claim that the treatment of syphilis is responsible for tabes. I would like to ask whether there was a history of syphilis in this case, and what the treatment was; whether there is any connection between these two, the syphilis and the tabes.

Dr. Freer:—There was no history of syphilis in this case and a careful examination failed to reveal any evidence of syphilis. The lesson to be learned from the case is that laryngologists may be called on to discover nervous diseases through evidences in the larynx, and that all the work done on the innervation of the larynx is German.

SUBJECTIVE SENSATIONS OF SMELL AND THEIR SIGNIFICANCE.

H. KAHN, M.D.

DISCUSSION.

Dr. W. L. Ballenger:—I think that many of the cases reported are not cases of perosmia, inasmuch as the patients had a stinking substance in the nose which they smelled. Perosmia is a hallucination of smell and not smelling foul secretions in the nose. In antrum suppurations very foul odors are perceived.

Dr. Holinger:—I wish to call attention to the fact that not all cases of perosmia have an organic basis. The usual symptoms of a coryza is perosmia. If in such cases the sinuses would be examined carefully, some hint as to the cause of the trouble would be discovered.

Dr. Wm. Healy:—Beginning with the work of Jackson on the uncinate gyrus, neurologists have paid more or less attention to the sense of smell. An important point is its relation to epilepsy. Applying an electrode to motor cells of the cortex would cause the limited production of certain smells and prolonged application would cause a generalized fit over one side or sometimes over both. There have been described a class of fits, the so-called uncinate fits, in which the aura has been that of the sense of smell. It is believed now that many of the so-called hysterical symptoms of perosmia may be due to irritation of the uncinate gyrus. One of my patients, a young girl, perceives an odor emanating from her body and from her bowels. She has ideas of persecution, which makes up a nice picture of paranoia. She has been treated vigorously, and it is possible that there is some organic disease, because she has not been relieved.

Dr. Kahn:—I gave only a clinical classification in my paper. These are subjective symptoms, and if objective proof is found, it becomes an objective symptom. They might be classified as true and pseudo-perosmias; the true being of nervous origin, with no definite organic change, and the pseudo those in which the cause is concealed. As far as digging around in the sinuses is concerned, it is known that perosmia is only found in diseases of the ethmoid sinus and the antrum of Highmore, the sphenoid and frontal sinuses never causing any such symptom when diseased.

THE TECHNIQUE OF ADENOIDECTOMY AND A PERFECTED CURETTE.

F. GURNEY STUBBS, CHICAGO.

There is no apology needed for bringing before a body of such distinguished laryngologists as this a paper on this subject; for the last word has not been said regarding either the anatomical consideration of lymphoid tissue in the nasopharynx, or the technique of its removal. And the latter depends absolutely upon the former.

In the first place we have to deal with a part of what is called "Waldver's ring"—that is, encircling the entrance to the pharynx we find in or under the mucosa, more or less continuously, lymphoid tissue, which in four points is massed, giving us the four tonsils, lingual, pharyngeal and faucial. These are found in all cases, in adults as well as in children, though in some they are so small as to seem at first glance to be absent. Occasionally we see cases where the whole ring seems to be enlarged, so that there is no line separating the lower pole of the faucial tonsil and it seems to continue well down towards the larynx and over on to the tongue; numerous follicles show on the lateral pharyngeal walls posterior to the posterior pillar of the tonsil; and, where a view can be obtained, the lateral recesses of the naso-pharynx (Fossa of Rosenmueller) are also seen to be thickened. But this rather rare condition does not for a minute lead one to regard the tonsil as any the less a circumscribed body nor do we attempt to go beyond this tonsillar body in its removal.

In like manner we must regard the pharyngeal tonsil. There is always a central mass, larger and thicker, no matter how much increase there may be in lymphoid tissue laterally. While the pharyngeal tonsil differs little in structure from the faucial, yet the pathological changes may be divided into four varieties:—the soft, diffuse, composed largely of lymphoid structure; the edematous or cyanotic; and the hard or hypoplastic, due to an increase of lymphoid structure and a decided overgrowth in the connective tissue element.

In all cases the adenoid is lobulated, the lobes lying close together so as to have their adjoining sides flat and the lateral ones shorter and not so deep, so that on its removal it has a rather circular outline. I have often found cheesy masses of epithelial debris similar to that found in tonsillar crypts, which was retained by the superficial edges of these lobes becoming adherent and forming a sort of pocket.

The next step is to study the anatomical seat of the adenoid. This is on the vault of the pharynx. I use the word vault advisedly, for two reasons. First, the adenoid proper does not extend into the Fossa of Rosenmueller. If that space, which is the lateral angle of the union of vault and lateral wall of the pharynx, is anyway encroached upon it is only due to an increase of the lymphoid tissue normally there and is not the adenoid proper.

Secondly, the same condition is present where there is any thickening on the posterior wall below the adenoid. The adenoid is attached only by its posterior edge to the posterior wall. Its basis is entirely on the vault. By the term vault I mean that part of the pharynx which is nearly horizontal, beginning anteriorly at the junction of the vomer and sphenoid, extending posteriorly to where it curves downward to the perpendicular, on the anterior surface of the atlas and axis. It is the basilar process of the sphenoid and occiput and is fairly level. The lateral walls of the pharynx meet the vault at a right angle. Hence we have a well defined body attached to a fairly level or sloping surface and it only needs a proper knife to slice it off.

This is met by the so-called adenoid eurette. But not by any and every eurette one will find in the shop. By a study of the skeleton, cadaver and live subject I find that the shape of the eurette is absolutely essential to a thorough removal. Further, it must be used correctly. With a correct instrument and a correct technique the adenoid should be removed entire with only one sweep of the knife.

I have altered the well-known von Beckmann eurette as to the angle, depth and curve of knife, width of side or supporting pieces and their position as to recession from edge of knife. By its correct use it does not eurette or scrape, but slices the adenoid smoothly from its basal attachment, with the individual lobes entire and included with their base. It is necessary to use an instrument as wide as will snugly fit into the vault and reaching from one lateral recess to the other. To meet this, I have chosen three sizes which will suit all ages, the inner cutting edges being, respectively, 13, 16, 19 mm.

If the patient is in the erect position, with or without an anesthetic, or prone position under general anesthetic, the procedure is the same.

The mouth is opened to the fullest extent, and for this I have modified the Murdock self-retaining mouth-gag. This is actually self-retaining and is not in the way, allows the patient to be turned from side to side without removal, and can be quickly removed by the finger rings I have added as easily as one would wish. A tongue depressor is of assistance in allowing a free view, to see that the curette is passed between the posterior pillars and up back of the uvula, and then withdrawn.

As soon as the back of the knife is raised above the uvula it is drawn forward to the vomer and, hugging its posterior edge, is pushed as tight to the vault as possible. It is then forced directly backward in a horizontal plane till it reaches the posterior wall, when the handle is sharply elevated and the knife cuts into the angle which is there present. Elevating the handle still more causes the knife to cut one to one and a half em. down the posterior wall, at which point the lower limit of the adenoid is reached. Then a quick withdrawal of the curette will sever the adenoid from its attachment at its lower periphery and in many cases precipitate it on the floor. If this does not occur, it will lie on the lateral wall of the pharynx if the patient is on its side (the correct position) and can be withdrawn by fingers or forceps. No hood to catch the adenoid can be attached to a curette without impairing its usefulness. The dangers of obstructing the larynx by the detached adenoid is most theoretical anyway.

To explain the reason of this detail: First, the back of the knife must hug the back of the vomer all the way up in order not to force any lobes or parts of lobes into the posterior choana and thus interfere with the knife properly applied entirely in front of the adenoid. This can not be done where the knife is first applied to the posterior wall of the pharynx and then drawn up over the adenoid and accounts why so often after its use a fringe of adenoid remains at the posterior choana and the symptoms of obstruction are not relieved.

Second, the direction of the stroke of the knife must first be directly backwards, and only after it meets the posterior wall should it be made to cut downwards. My observations have been that too many operators depress the knife with the beginning of the stroke and then return and make the same mistake for seven or eight strokes more and have only a few pieces and much blood to show for all the misdirected scratching.

Third, the downward stroke on the posterior wall should only be for one to one and a half cm., and then a quick pull or jerk forward to free it and if possible throw it entirely out of the mouth. There is no excuse for stripping the posterior wall, as is so frequently done. This is caused by scraping below where the adenoid is attached and by the wrong angle of the knife. I have set the knife at such an angle that it cuts horizontally on the vault and on the back wall will not scrape it down if drawn sharply forward as soon as the adenoid is separated above. It is also straighter on its upper and cutting edges and its supports recede so that it can approach the posterior wall flush to its union with the vault and thus not leave a mass of adenoid tissue in the angle. If one will compare many as found on sale it will be seen that the knife edge can not cut at all on the vault, but only with a downward motion on the posterior wall. It is narrow so as to allow its being raised anteriorly to the adenoid and thus leaves none where it is most essential to be removed.

Lastly, while more delicately formed it is hand forged and thus can be relied upon not to break. And it should be kept sharp, for it is not a scraper but a knife.

I believe too much importance can not be attached to the details I have brought out, both in instrument and technique, if we are to completely remove adenoids as they should be. One can readily see from a study of the adenoids I present that they are complete in their entirety and I have proven them so by both digital examination and rhinoscopy where accessible. By the study of same one also sees that adenoid forceps only tears away fragments, leaves a ragged, uneven surface, can not get down to the absolute base, nor can they reach into lateral recesses as well as a properly fitting curette. In an infant

one can not even manipulate forceps. I have found no trouble at all in using curette No. 1 in an infant six months old. In such a case very little force is required for the adenoid is soft, but it will be found just as complete as in older patients.

There are two chief indications for the removal of adenoids: first, where they act as an obstruction to nasal respiration by blocking the posterior choanae or where they encroach on the Eustachian eminences. Second, where by their formation of pockets they act as an atrium of infection similar to the tonsil.

These indications can be absolutely met by this curette in their removal. It is true it will not cut laterally and dig into the fossa of Rosenmueller, but it is not necessary in meeting the ordinary indications. That would be attempted only in the special cases where the lymphoid (I do not use the word adenoid) tissue is in such increased amount that the aurist sees the special need for its removal. Then it would be accomplished by special currettes, as the lateral ones of Fein, Mygind and others. This rather rare procedure I would disregard in all but special cases.

A study of the exudative diathesis of Czeruy would show us that removal of more than the bodies of tissue meeting the two indications I have named would be unwarranted, as the lymphoid tissue is not a cause *per se*, but only a manifestation of systemic conditions.

103 State Street.

DISCUSSION.

Dr. E. Pynehon:—I wish to indorse the angle in which the cutting blades are placed. It is the only natural angle whereby one can curette the entire vault. The only criticism that can be made is that the blade is in a straight line. The pharyngeal vault is high and arched, and putting a straight line across it does not enable one to touch all the surfaces, which are rounded. The blade should be curved. The vault also gets smaller toward the top and a straight-angle knife can not go clear up to the top. If the blade were curved it would be just as effective. I have a curette which is curved and has side cutting blades, so that the fossa of Rosenmueller can be euretted. Ten years ago I designed an adenoid curette the upper blade of which was placed at the same angle as Dr. Stubbs'. It was also curved, and it was provided with side cutting blades, so that the fossa of Rosenmueller could be euretted.

Dr. W. L. Ballenger:—I wish to call attention to the anomalous formations of the pharyngeal vault, and it is obvious that not many currettes made will meet all these conditions and remove the tissue. I think that Dr. Stubbs' curette is one of the best, but the curette of Dr. Pynehon, designed some years ago, with a backward sweep of the blade, would be successful where Dr. Stubbs' curette would fail.

Dr. Henry Gradle:—I think that the curette is correctly designed and that it is applicable to the slight variations of the pharynx met with in practice, and that with moderate skill and some practice the mass can be brought out in one piece with one sweep. But it presupposes some practice and skill, and to minimize that I designed the automatic guillotine or curette. It is very similar in curve and form to the Stubbs curette. The knife of the guillotine does break once in a while, but only in one place; but all that is necessary is to put in a new knife. The particular advantage of the guillotine is that it adapts itself automatically to the shape of the pharynx, and if the operator remembers to push it upward firmly enough, sliding along the posterior edge of the vomer, he can not fail to bring out the mass, even with little skill. But with more skill Dr. Stubbs' curette will accomplish the same purpose as thoroughly and as satisfactorily.

Dr. Joseph C. Beck:—I use the Barnhill curette and have no trouble in getting out the adenoids in one mass. One might have trouble with Dr. Stubbs' curette in cases where there is a deformity of the wall of the pharynx or a protrusion of the atlas, and extreme care would have to be used in making the forward and upward sweep not to cut the mucous membrane. The greatest trouble the average

practitioner has is to sweep downward. I have modified the guillotine by making the blade work upward, thus preventing a breakage. I use a solid blade, devised by LaForce, and it does the work very nicely.

Dr. F. G. Stubbs:—It is true that no single instrument can be made that will fit all cases, but I believe that this one will in the great majority. The reason that I made the knife blade nearly straight on its upper surface was that I found it would gouge too deeply in the median line, in many cases, if it had much curve.

What Dr. Gradle claims for his adenotome is true, yet it is also true that it can not adapt itself to varying shapes of the vault as the curette. Further, as one should use as large an instrument as will fit into the vault, at least three sizes are needed, and this makes a very expensive outfit.

Replying to Dr. Beck, I would say that my curette differs from Dr. Barnhill's in that the supporting sides recede directly from the knife, while the knife is straighter, more flat and much narrower, apparently small differences and yet essential to a complete removal. And this complete removal should be done with only one sweep of the curette.

Regular Meeting, April 14, 1908, the President, Dr. A. H. Andrews, in the Chair.

SUPPLEMENTAL REPORT OF A CASE OF XANTHOMA, WITH EXHIBITION OF PATIENT.

JOHN EDWIN RHODES, M.D., CHICAGO, ILL.

I presented this patient before this society in May, 1906 (see *Laryngoscope*, October, 1906). A few days after his presentation here it became necessary to do tracheotomy to relieve his breathing. He is now wearing the tracheotomy tube, and has done so since that time. Permit me to recall a few points as to the disease and the history of this patient for the benefit of those who did not see him at that time. Briefly, xanthoma is a perfectly benign neoplasm, and is of a fibro fatty character, deposited in the corium. This patient presents the two forms in which the disease is usually seen, the plaques and the nodules. There were also the lesions as they are found on mucous membranes, although those that were present in the fauces have disappeared, that on the conjunctiva of the left eye is much less prominent now than then, and had at one time disappeared entirely.

The multiple forms seen here are rare in one individual, and when found in young people are usually congenital, but when found in adults are often associated with chronic jaundice, or with glycosuria as in this case. The most common form is the xanthoma palpebrarum, which is not so rare. The lesions on the eyelids were marked when this patient was shown before, but have almost entirely disappeared now. The lesions on the skin have a deposit of pigment, varying from a light yellowish or brownish color to a deep bronze. The very rare condition shown here, the patches on the conjunctivæ, are of a light yellowish color, and, while that on the right eye is large, its position is such that it does not affect his vision, and is absolutely unirritating in its presence. The lesions on the neck have faded somewhat, but those about the shoulders, the gluteal region, the penis, the scrotum, etc., remain about as they were. They are little indurated, except the nodules on the penis, are little raised from the surface, and over some parts of the body are smooth and level with the surface. The patient is 20 years of age, the mother is living and well, and the father died of cerebral hemorrhage about three years ago. There is no history of any similar disease in the family. He has never had any severe illness, there has been no venereal trouble, and he has never used alcoholics or tobacco.

His present illness began about six years ago, the first symptoms being an intense itching of the eyelids, shoulders, etc. This was felt at intervals, and finally the eruption appeared simultaneously on the eyelids, neck, shoulders, penis, scrotum, and other parts of the body. Four years ago he began to have an intense and constant thirst and to pass large quantities of urine, which now

amounts to from seven to nine quarts a day. When he first presented himself to the society he complained of spells of dizziness and faintness, lasting a couple of minutes at a time, at intervals of two or three weeks at first, which had gradually increased in frequency to several attacks daily. In addition to this symptom, there was an increasing difficulty in breathing, which was progressive in severity, and was very marked at that time. This became so pronounced that the tracheotomy was performed on the 3rd of May, 1906.

This is the point in this case that makes it one of peculiar interest to the laryngologist, for it is the only one on record, so far as I know, where a xanthematous lesion in the larynx has caused enough obstruction to necessitate such a procedure. When he was examined in 1906, the soft palate showed small, irregular patches of congestion, not raised from the surface and without pigmentation. There was a slightly nodular condition of the pharynx. The right pillar of the fauces was somewhat contracted at the site of an old lesion, as was also the tip of the epiglottis. In the larynx the nodules were so thickly placed that the vestibule was almost occluded, leaving only a small opening between the vocal bands and the vocal cords, two or three millimeters, for the passage of air. In a recent examination I found that the lesions in the fauces had practically disappeared. Thorough cocaineization is necessary to examine the larynx, drawing forward the epiglottis, giving a good view. The change is here marked, the swelling having subsided about 50 per cent., so that the vocal cords are now visible, in part, and respiration through the larynx is fairly easy. The patient, however, has often experimented in removing the tube for a time, but has found it necessary to replace it, as his breathing soon became much too labored for comfort. I hope, from the improvement that has taken place, that he will some time be able to remove the tube permanently.

His general health is now excellent. His gain in weight since the tracheotomy has been forty pounds, and during all the inclement weather of the past winter he has followed his occupation, driving a milk wagon. I would call your attention to his voice, which is clear and strong, and which can be heard in all parts of the room, without closing the opening in the tube, which he protects with a few thicknesses of gauze. At first I gave him a tube with a ball valve, which allowed the ingress of air, but was closed on expiration. He discarded this very soon, as he could not breathe easily. I then substituted one with an oval opening in the upper surface of the tube, allowing free passage of air from the trachea to the larynx. This opening has seemed unnecessary, and since February 1 he has worn an ordinary tube, and the amount of air passing about it to the larynx is sufficient for good vocalization.

Dr. John Edwin Rhodes exhibited an unusual case of exanthoma, "Tuberculous Laryngitis."

Dr. Geo. E. Shambaugh exhibited a patient, 50 years old, who first began to complain of hoarseness about a year ago, but who suffered no inconvenience until a few weeks ago, when there appeared dysphagia. The condition is growing gradually worse, but there is no evidence of tuberculosis. Microscopic sections, however, show the typical tuberculous infiltration with giant cells.

Dr. Norval H. Pierce reported a case of "Chronic Suppurative Otitis Media with Thrombosis of Lateral Sinus and Jugular Blnb and Cerebellar Abscess, Operation and Recovery."

DISCUSSION ON DR. PIERCE'S CASE.

Dr. Joseph C. Beck:—There were two points of interest in this case: first, the presence of cerebellar abscess without symptoms; second, the chill. In a case recently under my care a diagnosis of labyrinthine disease from symptoms such as nystagmus, staggering gait, etc. On exposing the labyrinth I found it unaffected, but there was a perisinusoidal affection and compression of the cerebellum, which was producing these symptoms. When I cleared up this condition the symptoms disappeared. Therefore, may not the nystagmus in Dr. Pierce's case have been one of the symptoms of cerebellar abscess? As to the second

point, the chill, I have learned by experience that when this chill has occurred to suspect sinus trouble and I expose the sinus at once. I have operated recently on such cases with gas-oxygen anesthesia to my absolute satisfaction. There is no danger of collapse and prostration. I would like to ask Dr. Pierce whether the facial paralysis cleared up.

Dr. Frank Allport:—Would not the fact that there evidently was labyrinthine involvement serve to indicate that there was a brain involvement as well? In doubtful cases I get considerable assistance from a blood examination, macroscopical and bacteriologic. Finding streptococci in the blood would lead one to believe that there existed serious involvement of the sinus and brain, or either one. I always have blood counts made, as I like to know the percentage of polymorphonuclear cells and lymphocytes. Such examinations are of great assistance in diagnosis. I agree with Dr. Pierce in the deductions he has drawn from this case. I believe in a full exposure of the sinus in such cases, and in doubtful cases taking off the outer osseous covering of the sinus and the dura. I do not think that we can always make a positive diagnosis in these cases. In one case, with few symptoms, we opened both mastoids and found serious involvement of both and then opened the sinus and found a streptococcus infection. The symptoms are not always clear-cut and well defined, but I think that we can draw deductions from the conditions as we see them.

Dr. Geo. E. Shambaugh called attention to the fact that the nystagmus and ataxia which occurs in cases of cerebellar abscess are not unlike the same symptoms arising from a pus infection in the labyrinth. The cerebellar abscess of otitic origin arises usually from an extension through an involved lateral sinus, or by way of the labyrinth. If the cerebellar abscess follows secondarily upon suppuration of the internal ear, one may be able to diagnose the occurrence of a cerebellar abscess by finding a complete destruction of hearing and an absence of increase in nystagmus and vertigo by the Barney method of syringing the external canal with hot and cold water.

Dr. Pierce (closing the discussion):—The nystagmus can be accounted for by the findings in the labyrinth. It was labyrinthine nystagmus because the condition disappeared after operation on the labyrinth before the cerebellar abscess was opened. The facial paralysis has disappeared almost completely. There is very little lack of movement on that side of the face. A blood count was made a number of times, but I place less and less dependence on it as I go on with this work. In positive cases we do not have to make it, and in doubtful cases it is too uncertain and not always of value. This was undoubtedly a case of sepsis, but the question was, where was the pus being poured into the venous channels? On account of the condition of the patient and the fact that the sinus appeared to be normal, I deemed it best to delay opening it.

THE SIMULATION OF MASTOID DISEASE BY FURUNCLE OF THE EXTERNAL MEATUS AND PERI-AURICULAR ABSCESS.

H. GRADLE, M.D., CHICAGO.

(Abstract.)

The speaker pointed out that there are comparatively rare instances in which mastoid disease is simulated more or less closely by either furuncles in the meatus or abscesses around the meatus. He showed by illustrating cases that small deeply seated furuncles in the posterior wall of the meatus may at first escape detection, while the swelling, pain and tenderness over the mastoid suggest purulent disease in the depth of the bone. Pale edema over the mastoid is indicative of a furuncle while inflammatory edema or infiltration suggest true mastoid involvement. This history of acute onset without involvement of the middle ear is generally a valuable guide in the distinction between furuncle and mastoiditis.

Even more difficult may be the diagnosis between an abscess around the meatus and mastoiditis. The external abscess may be secondary to a furuncle or a diffuse otitis external. In one of the cases it was due to the burrowing of the pus from a peri-tonsillar abscess. There is a good deal of fever present. When a pale and normal drumhead can be seen mastoiditis is almost out of the ques-

tion. Some reliance must be placed on the history of the acute onset and the relatively slight involvement of the general health in peri-auricular abscess.

Dr. Gradle showed a salivary calculus about the size of a large pea. The patient had had attacks of painful swelling of the submaxillary gland lasting weeks at a time. Even between the attacks the gland was enlarged and somewhat tender, a concretion could be felt in the duct underneath the tongue. It was scooped out after an incision under cocain injection. Uneventful healing. Gradual return of the salivary gland to its normal condition in about a month.

DISCUSSION.

Dr. J. Holinger: Although the differential diagnosis between mastoid abscess and periauricular abscess is exceedingly difficult, it can be made. I often give this question in competitive examinations, and while the answer appears to be an easy one, it is not. In three cases of swelling of the parotid gland the diagnosis was extremely difficult; in another case a mastoid operation became necessary because the mastoid was involved later on. The parotid was incised for pus. The temperature increased from 101 to 103 F. The inflammation of the gland and mastoid was influenced favorably by interdicting the administration of fruit juice.

Dr. Norval H. Pierce: The differential diagnosis between the swelling back of the ear caused by furunculosis of the external auditory canal and swelling behind the ear from mastoid disease, is very simple. In the former, there is *edema* of the ear, and in the latter, there is *infiltration*. In the one case (edema) the swelling pits on pressure and in the other (infiltration) it does not. In infants, there may rarely be some edema in mastoid disease, but it almost never occurs in adults, and is not so marked. A case happened in my experience where a consultant in a large city was called to a small country town to operate for mastoid abscess. The patient was a young adult complaining of pain in and about the ear, fever and with marked swelling behind the ear; the auricle was disreceiving the attention it should, either by ophthalmic surgeons or the *x-ray* placed downward, outward and forward, and the external auditory canal was so filled up that a view of the tympanic membrane could not be had; but on the mere fact that it was edema and not infiltration back of the ear, the diagnosis was correctly made.

Dr. O. T. Freer: An old gentleman had repeated swelling of the parotid, non-septic in character, occurring about once a week, and looking like a case of mumps. I knew that he had a recurrent parotitis, but could not discover the cause. A prominent surgeon said that there was dead bone in the jaw, which he wanted to remove, but the patient objected. He came back to me and consented to an opening of the duct of the gland. I took out a fish bone, and the patient promptly recovered.

Dr. Frank Allport: I agree with Dr. Pierce as to the diagnostic significance of edema and infiltration, but I have seen edema present in both cases. As a rule, the diagnosis of furunculosis is an easy one, and yet I can readily understand how one can be misled. I have had cases where I had to hold the diagnosis in abeyance, especially when it is not a simple case of furunculosis; where the starting point is a middle ear involvement, with more or less chronic discharge, followed by infection of the canal producing furuncles.

Dr. J. C. Beck: I want to call attention to a positive diagnostic point, and that is the skiagraph. In furuncles if the mastoid is clear, except when there is also mastoid involvement, as in Case 3. The skiagraph shows not only the involvement of the mastoid, but the degree of involvement.

Dr. A. H. Andrews: I find the transilluminator very useful in doubtful cases.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of May, 11, 1908, the President, Dr. T. A. Woodruff, in the Chair.

SYMPOSIUM ON INJURIES TO THE EYE—DIAGNOSIS OF METALLIC BODIES IN THE GLOBE.

Dr. Gordon G. Burdick (by invitation) stated that this subject has never

operator, owing to a general want of information regarding the procedure. He described the methods employed for locating foreign bodies in the eye with the x-ray and pointed out that the ray is infallible as a means of diagnosis, although failures do occur. These must be charged to the human element in the work. Cases should be sent to the skiagrapher for diagnosis and not for the skiagram only because the x-ray operator is more capable of reading a plate than is the ophthalmic surgeon or any practitioner not specializing in this work. Dr. Burdick also presented an instrument devised by him by means of which the three known methods of locating foreign bodies in the eye can be carried out, the Grossman, Sweet and Fox methods.

INDICATIONS FOR ENUCLEATION AND ITS SUBSTITUTE.

Dr. George Fiske believes that the one good substitute is exenteratio bulbi. It is adapted to all cases, except tumors. The advantages of the methods are: (1) increased mobility of the stump; (2) leaving the sclera, thus not inviting infection; (3) less likelihood of eversion of the lids and swelling of the soft parts; (4) the artificial eye is much better worn. Dr. Fiske emphasized the necessity of removing entirely the contents of the bulbus, leaving no shreds of choroid, particularly about the optic nerve entrance. Instead of the glass ball, he favors the use of some pith-like substance which can be included in the blood clot and become organized afterward.

MIGRATORY OPHTHALMIA IN ITS RELATION TO INJURIES OF THE GLOBE.

Dr. H. W. Woodruff called attention to the serious complications which may follow perforating wounds of the eyeball and operations on the same. Acute purulent processes can, in most instances, if dealt with in the first twenty-four hours, be checked by deep injections of cyanid of mercury. Among 199,454 cases at the Illinois Eye and Ear Infirmary only 108 cases of migratory ophthalmia have occurred. The removal of all eyes blinded from traumatism is the best prophylaxis, especially if tension is subnormal. Woodruff has employed large doses of sodium salicylate in nearly all cases of serious injury not demanding immediate enucleation. Mercury must be used until the physiologic effect is produced. He emphasized that an eye with poor projection and lowered tension should be removed, provided that the lowered tension is not due to the long-continued use of atropin. The general condition of the patient must be looked after. As a rule, the most that can be hoped for is that the active symptoms will subside, leaving the iris firmly adherent to the capsule of the lens, which in all probability is not cataractous. After a year or eighteen months, if there has been no recurrence of the inflammation and the intraocular tension has not been diminished, the patient's perception of light being satisfactory, operative intervention may be considered.

SOME POINTS CONCERNING THE TREATMENT OF THE COMMONER PENETRATING WOUNDS OF THE EYEBALL.

Dr. Frank Allport discussed particularly the steel and iron injuries in workmen. He emphasized the importance of prompt and early treatment. He said that intraocular foreign bodies are always dangerous and should always be removed, if possible. The x-ray should be employed for diagnosis, and also the magnet, and when both these agents fail to disclose a foreign body, it may be assumed that none is present. Unless the fragment is located anteriorly and can easily be removed by the forward route, Dr. Allport favors extracting it through a scleral opening, which he considers to be much safer than dragging it over the delicate and sensitive tissues of the anterior portion of the eyeball. No attempt should be made to suture the scleral opening, because it necessitates too much pressure, the needle might break off in the eyeball, and infection may occur. It is quite sufficient to suture the conjunctiva with catgut. The danger of infection and retinal detachment are less by this method than by extraction by the anterior route. Before operation he employs a 25 per cent. argyrol solution and after the operation he usually applies over the closed lids a thin coating

of Credé's ointment on a piece of gauze. Daily dressings are made. Rest, dieting, catharsis and large doses of salicylate of soda are a part of the treatment. He considers it a mistake to attempt to preserve an eyeball in which vision is hopelessly destroyed and which is badly mutilated, especially when the mutilation is in the ciliary region.

Dr. Casey Wood was glad to know that Dr. Burdick took all the responsibility on localizing foreign bodies in the eye. He was in the habit of declining to look at skiagram plates because he did not consider it to be within his province or his ability to decide whether, in doubtful cases, a certain mark or spot on the plate indicated a foreign body or not. Of course, when a large body enters the eye, it is easy to demonstrate its presence not only by the skiagraph, but by means of the ophthalmoscope, sideroscope, Haab's magnet, etc.; it is very small bodies that give rise to difficulties in diagnosis. It is for the skiagrapher alone to deliver the opinion in these cases; it is better for the patient and for the ophthalmologist. Dr. Wood also referred to those cases in which there is a penetrating wound of the cornea, iris or lens and yet no foreign body is found in the globe or orbit, the missile having entered the eye and dropped out again. Before the days of easy localization of intraocular foreign bodies he scouted the idea of the existence of such cases, but he is now convinced that they are not very uncommon. He took exception to Dr. Allport's method of extracting foreign bodies through a scleral incision rather than to draw them into the anterior chamber with the magnet, after the plan of Haab. Although the latter procedure would seem, at first, to produce a more extensive trauma of the anterior part of the eye, he thought the results are better. Of course, he said, if everybody extracted these bodies as skillfully as Dr. Allport, the argument would not be so strong in favor of Haab's method, but in the average extraction as made by the ordinary practitioner, the danger of infection and other accidents is increased.

Dr. Wood feared that physicians, as a whole, do not realize the dangerous character of finger-nail wounds of the cornea, as in the case reported by Dr. Fiske. They are not, as a rule, the simple things they seem to be. There is, he said, no slight external wound of the eye that is more serious and more likely to cause trouble.

Speaking of the involvement of the sympathizing eye, he asked how we are to know when an incision of the anterior of the eye will produce a migratory ophthalmia and when not. He referred to Randolph's experience with toxins made some years ago, in which he showed that bacterial toxins, as far as the tissues of the eye are concerned, are just as destructive as the bacteria that excrete them, and inasmuch as toxins can be readily carried from one eye to the other, why not believe that migratory ophthalmia is essentially a toxin invasion from one eye to the other? He thought the term "migratory ophthalmia" is more expressive of the condition than the "transferred ophthalmitis" of Oliver. Dr. Wood has frequently attempted to introduce into factories devices for preventing penetrating wounds of the eye. In Germany, where there is a large state insurance for operatives, the authorities insist on workmen using goggles and other forms of protection against injury. One factory in this city that provided goggles for workmen could not persuade the men to wear them, although they daily observed about them examples of eyes lost from plainly preventable injuries.

Dr. W. A. Fisher stated that four years ago when reporting a large number of cases to this society he advocated removing the foreign body first and making the picture later—if the foreign body could not be found. He has not had any occasion to change his views. Like Dr. Wood, he does not care to see the plate, but wants to have the skiagrapher make the diagnosis, if the diagnosis be made that way.

He felt that if Dr. Allport had a foreign body he would not want it removed in the way he suggested. If the lens is injured by a foreign body, there is no reason why much more injury can be produced by removing the foreign body through the cornea. If an incision is made in the sclera detachment of the retina

may follow. He referred to a boy, nine years old, who was injured in the right eye. Two months later when first seen he was practically blind in both eyes, hopelessly in the right, with a fully developed sympathetic inflammation in the left. He used fluorescein for the first time in such cases in this case, with a negative result. He removed the exciting eye within two hours after the patient's first visit to him. A short time after using fluorescein in this case he saw a case in consultation with Dr. Colburn that was thought to be sympathetic inflammation. Fluorescein was suggested and used as in the first case with a negative result.

Some days later when trying fluorescein on a case of cyclitis several instillations were used and the deposit beautifully demonstrated. The two cases of sympathetic inflammation were again tested by dropping in two drops of a 1 per cent. solution of fluorescein every five minutes for one-half hour. The deposit could easily be seen on Descemet's membrane in both cases while no deposit could be seen on several normal eyes that had the same solution dropped in the same number of times. He did not mention fluorescein as being new, but thought the application of its use was not fully understood. He is of the opinion that fluorescein if properly used should have a place as a means of diagnosis in injuries of the eye.

Dr. Charles H. Beard, speaking of the more extensive perforating injuries of the sclera, emphasized that early treatment is important. If quick healing, without complications, can not be effected, the treatment is in vain. Even in the most severe cases with extensive involvement of all the tunics, it may be in the ciliary zone, such healing may take place if conditions are favorable. How make them favorable? Make sure of the absence of a foreign body; use copious, warm, mild antiseptic irrigation, and remove all shreds of uvea, retina and vitreous. He believes that small wounds, and even quite extensive ones that are meridional, may often be left without sutures, simply cleansed, extruding vitreous snipped off, and the conjunctiva stitched over them. If the scleral wound inclines to gape widely, it should be sutured. If the scleral and conjunctival wounds correspond, the same threads may include both; if they do not, it is best to close the scleral opening with absorbable sutures and the conjunctival with silk. Indeed, it is usually best that these wounds do not correspond even if a piece of conjunctiva constituting one lip of the wound must be excised to prevent coincidence. The wound is not only freed from dirt and vitreous, but from shreds of choroid and retina if these are present. Double-armed interrupted sutures are preferable, so that the needle can be introduced from within on both sides. The thread should, if possible, be made to include only the outer layers of the sclera, and in no case should the uvea and retina be included either in the wound or in the suture. Thread and needles should be very fine and the latter sharp. For the after-treatment little is to be said. He would trust more to thorough, even exhaustive, first aid than to occlusive bandaging, rest in bed, diet and general or constitutional treatment. Argryrol discs, or in solution, is a valuable adjunct to the dressing.

Dr. Henry Gradle stated that the all-important question in connection with any perforating injury is: whether there is infection present or not. If the injured eye is not infected it is not dangerous to the other eye; but if the eye becomes infected, it is always a source of anxiety to the surgeon because he can not tell whether secondary involvement of the other eye may follow or not. How can one tell whether the first eye is infected? In some cases it can be stated positively that there is no infection. There is only slight ciliary injection limited to a narrow zone; or there may be only a little injection around the wound. These cases are positively not infected. On the other hand, any one of experience can see that certain cases are infected by reason of the extensive vascular reaction. But there are cases where one can not be sure that infection is not present or where, if it is, it surely is but very mild and may be overcome by the tissues. These are cases where the surgeon's responsibility is greatest.

If the foreign body is in the eye, even without infection the injured eye is always in danger. Iron will almost invariably lead to siderosis, and sooner or later sight will be lost by sclerosis of the retina and its arteries. Glass also seems to be capable of producing aseptic destruction of the injured eye. He has seen cases where the eye had apparently recovered and yet went on to ruin because of the presence in it of glass. Such eyes had better be removed. Again, a foreign body may be aseptic, or if not, the eye may recover from infection, and still a secondary infection may occur very much later. A few years ago he saw an eye injured by a mining accident. After a few weeks, the eye seemed harmless, with a moderate degree of sight. The eye was not soft or tender or sensitive to light, although there undoubtedly were particles of rock in that eye. The eye behaved well, for a year and a half there was no reaction. Then violent infection set in secondarily. Either germs had been latent in the foreign body or they came through the blood stream to a *locus minoris resistentiæ*. The eye had to be removed.

The effect of sodium salicylate in preventing sympathetic ophthalmia does not seem to be proved. It probably may, he said, lessen the number of such cases by affecting the primary eye favorably, but two cases of which he has knowledge became sympathized under the use of sodium salicylate, so that as a preventive it can not be depended on. Similar conclusions were arrived at in Widmark's clinic, where 40 observations were made.

As to the effect of the salicylate on the sympathized eye, he can speak with more certainty. Of three cases he saw from beginning to end all recovered with perfect sight. They were typical cases of long duration, but recovery was permanent. In one of them the sympathetic trouble broke out 48 hours after the removal of an old injured eye. It had been injured forty years previously. After a few weeks of fresh inflammation, the patient consented to enucleation, and after 48 hours the second eye became involved. The second case broke out about the third or fourth week after the injury, when the first eye was well toward recovery. It ran a slow and tedious course but the man recovered good sight in both eyes. It is doubtful, he thought, whether such a recovery would have been possible without sodium salicylate in large, very disagreeable doses persistently kept up until permanent recovery.

The question whether the disease of the second eye is sympathetic or not, as in the case quoted by Dr. Fiske, he said, is very often a difficult one to decide, especially in instances where the primary eye has been removed for some time. There is nothing absolutely characteristic in the appearance of the second eye from which one can draw the conclusion that the disease is of sympathetic origin. For instance, a young man had had a small leucoma of the left eye, probably the result of gonorrhœal infection at birth. It had never given him any trouble. When 18 or 19 years old, the other hitherto healthy eye passed through a severe attack of iridocyclitis. The disease was absolutely intractable. After two or three treatments the eye was ruined; retinal detachment was presumably present; postmortem proved it so. The eye was enucleated. Eleven years later the other eye became inflamed in exactly the same way; passed through a typical violent iridocyclitis, which destroyed it completely. The examination of the first eye was not made thoroughly to determine whether it had been tuberculosis. But had that eye still been present or removed recently, anyone would unhesitatingly have called the disease of the second eye sympathetic. Yet after the lapse of eleven years since enucleation sympathetic involvement of the remaining eye was out of the question.

Dr. Lewis saw a patient last December about 19 years old whose eye was injured by a portion of a copper eartrudge entering the eye about three millimeters from the corneoscleral margin, and 36 hours later he could see a piece of the copper protruding forward through the root of the iris. There was a mild degree of iritis and at the side of the piece of copper there was a sharply circumscribed area of exudate on the anterior surface of the iris. The next morning he made a corneal incision and an iridectomy, removing the piece of copper. The patient

was in the hospital ten days, when all of the iritis had subsided. His media were clear and vision with a +0.37 cylinder at 75° was 30/33. Last month the vision was 30/33+ with correction. He gave a rather hard prognosis. Fuchs reported a similar case where ten years after the injury separation of the retina had occurred.

Dr. O. Tydings emphasized the value of the skiagraph as a means of diagnosis and the fallibility of the giant magnet. On one occasion he had a patient who came to him Feb. 16, 1902, for refraction. There was some deposit on the posterior capsule, and on inquiry the fact was elicited that in the August before he had had a slight accident in the factory, but had no trouble. Later, April 7, he returned with an attack of retinitis. He tried the giant magnet, but got no response. On Jan. 6, 1903, he had more trouble and was seen by Dr. Snyderaker, who had a skiagraph made, which showed a foreign body. The lens was perfectly clear and remained so until the last examination when vision was very much reduced, but it was on account of the rhinitis and not on account of the lens. In an effort to remove the foreign body through the sclera the eye was lost. That case showed the value of the skiagraph. Dr. Tydings knows of a number of cases where the giant magnet failed to reveal steel in the eye when it was there.

He was surprised to hear of the removal of pieces of steel through the sclera on a route of preference. He has not seen the least bad result from foreign bodies brought out through the anterior chamber directly chargeable to that method. A patient came to him about ten days after the injury. The only symptom was failure of vision. Examination disclosed a piece of steel in the lens, proving that the history of the patient can not always be relied on.

Dr. Burdick again called attention to the fact that the x-ray does not make mistakes; that the giant magnet is not always reliable because many of the high-grade steels are not magnetic and for that reason do not pole with the magnet. The opinion of the skiagrapher is of great value because the making of skiagraphs and reading them is his business. Ophthalmologists ought to remember that and permit the skiagrapher to make the diagnosis in all cases.

Dr. Wm. H. Wilder stated that if in eyes that cause migratory ophthalmia there is not only a plastic but a proliferative inflammation, it might strengthen the idea that evisceration is just as good as enucleation. But he does not see that there is any great danger in removing the eyeball *in toto*, provided one keeps well within the capsule of Tenon, except in cases of specific infection, which can be determined beforehand by bacteriologic investigation. Of course, he said, it is a well-recognized fact that one should avoid enucleation in panophthalmitis in such a condition and evisceration is the suitable operation if the eyeball must be removed, but in other cases it seems that the wiser procedure is enucleation. He has observed that he does not get better motion or prosthesis from evisceration than from enucleation. So much reaction may follow evisceration, particularly if there is associated with it an attempt at introduction of an artificial vitreous, that the muscles will be so bound down that there will be practically no more motion of the artificial eye than after a good properly performed enucleation.

Another point too often neglected is choosing the time to operate on the eye which has undergone sympathetic or migratory ophthalmia. Younger practitioners are too prone to want to do an iridectomy or to remove the lens before they should. One should, he said, wait at least a couple of years after the eye becomes quiescent before opening the eyeball to do an iridectomy or removal of the lens, otherwise the result will be disappointing because of the plastic exudation which will fill the pupil.

Dr. Allport thought that another reason why the magnet does not remove the steel is that occasionally the projectile passes in with such force that it goes completely through the vitreous chamber and becomes firmly imbedded in the posterior portion of the eye, so that it can not be withdrawn by the magnet. As to the route of removing the foreign body, if it is in the front part of the eye, it ought to be taken out that way, but if it is in the vitreous chamber beyond the lens it should be withdrawn through the sclera, making the opening carefully with

a sharp knife, large enough to remove the foreign body. The lips of the scleral wound should be held open with a demagnetized tenaculum and the magnet being placed at the opening promptly withdraws the foreign body.

Dr. Fiske favors exenteration because v. Graefe, in a long series, found that enucleation favors the development of meningitis. As to the mobility of the eye, figures favor evisceration from 5 to 15 degrees. As to infection in his case, it certainly was present, and was diagnosed by Dr. Wood and himself.

SYMBLEPHARON.

Dr. Wilder exhibited a boy who had an extensive burn of the eye with lime resulting in a symblepharon of lower lid and also quite a destruction of the upper cul-de-sac. The new cul-de-sac was well lined with Thiersch grafts, illustrating his method of holding the grafts in place with plates covered with high-melting point paraffin, are a great advantage in cases where the cornea is in whole or part intact, as there is less danger of damage to that part than if metal plates alone are used.

CYCLODIALYSIS IN GLAUCOMA.

Dr. Wilder:—A man had glaucoma in the left eye 17 years ago and had an iridectomy done. Four or five weeks ago he came with glaucoma of the other eye; tension +2; vision lowered about 20/200. A cyclodialysis after the method of Heine and Mullen was done with cocaine. The pupil is normal. Nothing else has been done for the patient. Vision is now 20/30, fields are markedly increased and tension has remained normal since the operation, now six weeks ago.

A CASE OF SYMPATHETIC OPHTHALMIA.

Dr. Oscar Dodd presented a case of sympathetic ophthalmia which dated back to May, 1906. The right eye was injured by a piece of glass, the cornea being cut towards the periphery, apparently not involving the ciliary body. The iris prolapsed; there was considerable irritation and practically no vision remained. He abscised the iris, after which there was slight prolapse of vitreous. Dr. Nance enucleated the eye June 23. Five days later the second eye became involved; vision decreased in spite of all treatment, but after a time began to improve. About the middle of August there was enough vision for the patient to get around and walk. The vitreous was clearing and there was practically no irritation. The patient was very anemic and in bad condition generally, so that it was difficult to carry out any treatment whatever. In October the eye was perfectly quiet and the vitreous was so clear that the fundus could be seen, although it was practically impossible to tell what her vision was. Dr. Dodd did not again see her until Jan. 31, 1908, when she returned again completely blind, with the eye much inflamed, pupil filled with exudate and prominent blood vessels all over the surface of the iris. Now the inflammation has quieted down, but she has only light perception. Projection is very good and tension is normal. Every effort is being made to get the patient into condition so that something may be done.

MORTIMER FRANK, Secretary.

FOX RIVER VALLEY MEDICAL ASSOCIATION.

On the invitation of the Aux Plaines Branch of the Chicago Medical Society the Fox River Valley Medical Association held another joint meeting with them at Wheaton, Ill., Wednesday, June 24, about thirty-five members and visitors being present. At the morning session Dr. Charles F. Read of Geneva read a paper on "Recent Surgery of the Nerves," and in the afternoon after an informal and very enjoyable dinner served by the ladies of one of the churches, Dr. W. S. Pickard of Maywood read a paper on "The Treatment of Pneumonia." The discussion of both papers was animated and as general as the time would permit.

RECENT SURGERY OF THE NERVES.

CHARLES F. READ, M.D., GENEVA, ILL.

The writer would beg to state at the beginning of this paper that he has been led by an interest in the work of other men rather than by any experience of his own, to present this subject for your consideration at this time. He trusts that the members of these societies, in the discussion to follow, may be able to supplement this fragmentary account with the results of their own experience along this line.

Let us in the first place briefly consider the process of degeneration and regeneration in the peripheral nerves. We are all more or less acquainted with the structure of the lower neuron, consisting as it does of a cell body with its direct continuation, the axis cylinder. Enclosing the latter and constricted at regular intervals by the nodes of Ranvier, is the medullary substance, semi-fluid and containing no nuclei. Still outside this insulating substance is the sheath of Schwann—or neurilemma cells—which is nucleated. Whenever the continuity of such a nerve is interrupted, destruction of the nerve structures just described follows in the peripheral segment—Wallerian degeneration. The neuro-fibrillæ of the axis cylinder change in appearance in the course of a very few days; the axis cylinder begins to stain differently than in health and to fade away in places, finally altogether disappearing. The myelin of the medullary layer is turned into something resembling fat, breaks up into droplets and is carried away by the phagocytes. The nuclei of the sheath of Schwann after some time multiply to a greater or lesser extent, and it is from these new neurilemma cells that a number of investigators claim a new axis cylinder is formed—a process of nerve regeneration called by them *autogenous*. Bethe, a German histologist and physiologist, is the principal advocate of this view, and even he of late has conceded that this new axis cylinder only becomes permanent and effective when it becomes linked with that of the central stump.

Halliburton, the eminent English physiologist, stated only a year ago in the *British Medical Journal*, May 11, 1907, that "peripheral structures are active in preparing the scaffolding but the axis cylinder, which is the essential portion of a nerve fiber, has an essentially central origin." So noted an observer as S. Ramon Cahal holds this view also. The neurilemma cells supply nourishment, but says Halliburton again, "We have never seen anything of the nature of an axis cylinder or neurofibrillæ in the peripheral segment of a divided nerve, provided connection with the central end is successfully prevented." And following this he makes the very sensible statement that "it is most improbable that the mesoblastic cells, which make up the neurilemma, could give rise to such a highly organized structure as the axis cylinder, which so far as we know, is exclusively epiblastic in origin." The article is strengthened with some very clear micro-photographs of the axis cylinders of the central portion of a severed nerve growing out with bulbous ends into the distal portion. Every one does not agree with the last author quoted, however, as I have already intimated. In fact I find in the literature that the most of surgeons and neurologists are non-committal, all agreeing however, to this one essential fact, that work in nerve suture must be done with a view to allowing the best opportunity for the growing ends of the central axis cylinders to easily penetrate the distal segment.

Although the immediate suture of divided nerves has been part of routine wound treatment for years, the joining together of nerves of different distribution as an operation of choice for the relief of local paralyses, is a matter of the last ten years, and more especially the last five. In fact, as regards the literature of the surgery of the entire nervous system, I have been considerably impressed with the fact that while the *Index Medicus* classifies the surgery of the other systems of the body very carefully, when you wish to find anything relating to the nervous system you must pick it up wherever you can. The search of the literature is thus made tedious and uncertain.

In 1894 Charles Smith operated on two horses for laryngeal paralysis, anastomosing the spinal accessory with the recurrent laryngeal, with considerable benefit to his patients. In 1902 Cushing operated for facial palsy of traumatic origin, using the spinal accessory with some success. In 1903 a case of perineal palsy was successfully treated by Spiller and Young of Philadelphia. At about the same time Hackenbruch of Germany began to work along similar lines. Up to 1906, however, only scattering cases are to be found in the literature, and the operation has only acquired an assured position as it were in the last two or three years. The operation for facial palsy was probably performed for the first time by Ballance of London, in 1895, but when Dr. Murphy read a paper upon this and kindred operations before the State Medical Society a year ago last May, the discussion that followed very clearly brought out the fact that the surgeons and neurologists had not grappled with the question for very long, and as yet were not considering it very seriously.

Arnold Davidson in *Beiträge für Klinischen Chirurgie*, March, 1908, details some six cases from the Heidelberg clinic and goes into a very thorough consideration of the operation. One of the cases he describes was that of a girl of 21 years old, in whom a facial paralysis had followed middle ear disease at 9 months—a duration of over twenty years. On Sept. 1, 1904, the spinal accessory was exposed in an incision some ten centimeters long, running parallel to the anterior border of the sternomastoid muscle, from the root of the ear downwards. The parotid was then shoved forward and the facial nerve exposed for some three centimeters. The posterior belly of the digastric was then cut across, the accessory cut half way through and the free end of the flap thus raised with its base central to its free end was inserted into a split in the facial, after which the digastric was united and the wound closed. The operation was entirely unsuccessful, as one would expect it to be after twenty years' duration of the palsy with the consequent changes in the muscle substance itself. No note was made as to whether or not they tried the electric reaction of the facial muscles previous to operation, as is now the custom in doubtful cases—some men even going so far as to advocate anesthetizing the patient and stimulating the involved muscles subcutaneously through the incised skin.

Another case was operated five months after the commencement of paralysis following operative section. The technic was the same. Two years and ten months later the symmetry of the face was very much improved, but the right forehead was still smoother than the left, the right naso-labial fold shallower than the left and the palpebral angle less. The right eye could be nearly closed but the patient succeeded but once in tightly shutting it. In laughing the left side of the mouth was elevated higher than the other and the whole mouth was pulled somewhat to the left. The patient could whistle quite well and the function of the muscles innervated by the spinal accessory was well preserved, but there was a slight drooping of the right shoulder and a hollowing of right supraclavicular space. When the right arm was raised there was often a simultaneous movement of the facial muscles upon the same side, but active face movements were not accompanied by those of the shoulder or sternomastoid. These two cases are fair examples of the results obtained from these operations. Failure is common, and a perfect result is a rarity, but a cosmetic result is often obtained and certainly is not to be despised by patient or surgeon. If the patient can even approximately close his eye, he is protected from a very great and constant danger, while an improvement in the appearance of the face in repose is certainly a boon worth the seeking.

In almost all of these cases accompanying movements take place in the face after the operation, when the head is turned or the shoulder is raised, that is, when the centers controlling the innervation of the spinal accessory are excited. One patient told Cushing that when he wanted to laugh "straight" he could help it out by moving his shoulder—that is, by not inhibiting a portion of the impulse from the accessory center. Another man could not carry an umbrella in his hand without grimacing at the same time, and still another had to

hold the hand of the affected side tightly with the other in order to lessen the shoulder movements. When the patient is young and intelligent there is good chance for him to learn to dissociate these movements, probably either by dividing his spinal accessory center into a face and a muscle center or by acquiring a control of this center with the higher one of the face. This is a matter of years' practice, however, and scarcely possible for the older patient or one lacking in intelligence and application.

And right here lies one of the great arguments for the use of the hypoglossal nerve in preference to the accessory in this operation—in that the accompanying movements are not observable; indeed, one of these patients had not noticed, until questioned, that such a condition existed at all. Again, the slight hemiatrophy of the tongue is not perceptible, while that of the shoulder and neck is at times quite marked, and especially undesirable in women who wish to wear low necked garments. The paralysis in either operation is quite negligible, save when the healthy nerve is completely severed; and when this is done for the sake of a surer facial result, as Cushing recommends, the consequent paralysis is of less importance when the hypoglossal has been used. And again the face center is nearer the hypoglossal center than to that of the accessory, which fact is thought to have considerable to do with the speedy improvement often noted in those operations utilizing the former nerve. The operation itself is said not to be much more difficult than the other.

In 1902 an unsuccessful operation for the relief of peroneal palsy following infantile paralysis was performed by Peckham, and in 1903 James K. Young of Philadelphia, performed the first successful one, under the advice of Spiller. In this a third of the posterior tibial nerve was inserted into the peroneal. In the course of four months there was a slight improvement of the paralysis. One and a half years later the patient was able to elevate himself upon the toes of the affected foot and to stand upon it unsupported. The leg, too, lengthened and the foot enlarged. Re-education is here, as in the case of facial paralysis, a very considerable factor, for the nerve supplying flexor muscles is the one most often used to conduct the new impulses—those of extension, that is, dorsal flexion—after the operation.

In a necessarily hurried review of the literature I was able to find very little concerning this operation. Judging from this and from the statement of Dr. Allan Starr at this last June convention, to the effect that he had thus far secured better results for his patients with tendon transplantation than with nerve suture, it would seem that the work along this line had not been a success thus far—at least not great enough to lead to reporting it, for unfortunately most men are still more prone to report their successes than they are their failures, even though as much may often be learned from the one as from the other. There are doubtless, however, many conservative surgeons waiting to-day for the results of operations done a year or two, or even three ago, to develop enough to bear reporting. The operation, if attempted, is better done from six months to a year after the attack, and in old cases best not at all—here tendon work is indicated on account of the muscle degeneration attendant upon long disuse and changes in the trophic cells of the anterior horns. When the case is well chosen the procedure is certainly a most scientific one and will doubtless grow in favor as we learn how best to carry it out as well as when not to do it.

Two years ago Spiller and Frazier of Philadelphia invoked the aid of nerve suture in the effort to relieve the sufferings of a case of athetosis in which the involuntary movements of the upper extremities were so rapid and so constant as to preclude the securing of a clear instantaneous photograph. Spiller thought that an anastomosis of flexor nerves with those of extensor distribution might bring about the muscle balance so sadly needed. This Dr. Frazier accomplished by a somewhat elaborate system of uniting the musculo-spiral with the median and ulnar nerves. Immediate paralysis naturally followed the operation, but after an interval of some months the patient began to flex his fingers slightly, a thing he had been unable to do voluntarily previous to the anastomosis. The

athetoid movements did not return, save slightly in the shoulder, and after more time he could flex the wrist, and then the forearm upon the arm. Eight months were consumed in making this progress, but the young man's life was made bearable by the operation and a subsequent one upon the other arm. I mention this case, not to point to the operation as a fixed procedure for a certain symptom complex—but rather to suggest the vast possibilities of this general mode of practice under consideration.

And in this latter connection I would like to refer to an article by Basil Kilvington in the *British Medical Journal*, April 27, 1907, in which the author discusses the possibility of successfully innervating pelvic structures by means of nerves arising higher up in the cord with a view to correcting certain symptoms in cases of crush of the lumbo-dorsal cord. We all know that one of the first thoughts of a man when he gets a case of this sort is, "How long can I keep the urinary system from becoming hopelessly infected?" With this in mind Kilvington has performed several experiments upon dogs, from one of which I quote the following: "Dog No. 2 was operated upon Aug. 20, 1906, and the anterior root of the seventh lumbar nerve joined to both roots of the second and third sacral nerves of the left side. On Feb. 12, 1907, 176 days later, the cord was cut across at the sixth lumbar and faradism of the seventh then produced: (a) vigorous contractions of muscles of the pelvic floor; (b) vigorous contraction of the sphincter ani, and after cessation of stimulation, extrusion of feces; (c) expulsion of urine in a jet. Excitation of the seventh lumbar upon the other side produced no such effect, but excitation of the second and third sacral produced the same effect."

In man the author states that the twelfth, the eleventh and even the tenth dorsal nerve can be sutured directly to the second and third sacral nerves. Possibly a nerve graft would enable one to use roots even higher up. At present the dangers of sepsis and shock, together with the untried state of the operation would naturally cause the surgeon to hesitate, but inasmuch as it would, if successful, prevent bladder complications, together with their disagreeable and ultimately fatal sequelæ, it would not be at all strange if it were yet to become a procedure to be seriously considered by both patient and surgeon in these cases. Five years from now it may possibly be at least as common as suture of the heart muscle.

As to the technic of nerve suture, there are a few considerations, as generalized by Keen and Frazier, that I would bring to your attention before closing.

(a) In the first place, the nerves involved are to be localized with precision according to their anatomical landmarks and the incision made a little to one side of the structures to avoid the possibility of their injury. In the case of an extensive cicatrix, electric stimulation with sterile electrodes is of very great help. Previous work upon the cadaver with a view to the case in hand, is of course invaluable.

(b) The approximation of the nerve ends can be accomplished in various ways according to the exigencies of the conditions found. These methods are much the same as are used in tendon work; that is, if direct suture is impossible, by transplantation—by suture at a distance with catgut—by resection of bone, but this very rarely—and by the utilization of a neighboring nerve trunk in the anastomosis, making of it a go-between as it were. It is in this step that we appreciate the necessity of a proper conception of the process of nerve regeneration; that it is essentially a growth of the axis cylinders out from the central stump—even though we grant that there may be some provisional axis cylinder formation in the peripheral segment. Our suture of nerve to nerve must be made with the end in view of affording these growing filaments the very greatest possible opportunity for penetration into the distal segment. We are to make everything as easy as possible for the flow of growth represented by the elongating axis cylinders. To this end the straight end to end suture is probably the best, and if splitting of one nerve is done, the surfaces of this slit should be scraped or even a small wedge cut out, if the nerve is large enough for this.

(c) Nerve substance should be cut with a sharp knife, not with seissors, which are bound to crush the delicate fibers more or less, no matter how sharp they may be.

(d) Sutures should be introduced before severance of the nerve, if possible, to avoid the use of forceps. The sutures may be passed through the substance of the nerve itself, when they should be of fine cat-gut, or through the sheath only, when they may be either of silk or cat-gut.

(e) Adhesions are to be prevented by the use of Cargile membrane or by imbedding the union in muscle or fat.

(f) Tension is very naturally to be avoided as in any other work of this nature, and to this end the nerve may be stretched—often a beneficial operation in itself, especially where there has been inflammation—and the parts then placed in a position affording the greatest relaxation to the point of suture, where if possible, they should be retained with a plaster dressing.

(g) The after treatment consists in keeping the parts at rest for from two to four weeks; after which time gentle massage with galvanic, followed later by faradic electricity, should be employed for a long period of time.

It is this after care, with the attendant anxious waiting for results, that must seriously tax the surgeon's faith and patience in these cases. Surgeons like to get results quickly—in fact, no small part of the charm and fascination of the art lies in the promptness with which results are obtained—if obtained at all. It is in this line of work, however, that the surgeon must learn his lesson of patience. He must watch and wait three to six months, a year—possibly only learning the full result of his efforts, when the patient is traced some three or four years later and found to have at last fulfilled expectations.

DISCUSSION.

Dr. H. H. Roberts, of Maywood, congratulated Dr. Read on his paper, but said he had expected it to be a little more general in its nature. In regard to the regeneration of nerves he wished to emphasize the fact that nerves without neurilemma do not admit of anastomosis as they do regenerate, which has been demonstrated by J. B. Murphy and others; that in division of the spinal cord, unions did not take place because the neurons composing the cord itself were devoid of a neurilemma. Peripheral nerves all regenerate.

The various kinds of pressure paralysis due to exostosis, tubercular caries, calluses, hemorrhage, etc., can be relieved by removing the pressure and nerve grafting, if necessary. Paralysis of the facial nerve offers a particularly tempting field for interference on account of its cosmetic value. Like most of those present he had had little experience in this great field, his being limited to one case. The part was immobilized for four weeks, followed by passive motion and the galvanic current; sensation was restored in about ten weeks and motion later. He would especially mention the necessity of protecting the point of suture by covering with fat or muscle tissue, and in the facial, of avoiding scar contraction and of maintaining parallelism between the diseased and living nerves grafted. The implantation of nerve tissue seems unsatisfactory and it is preferable to unite the severed ends. He had heard of several cases where nerves previously severed had been freshened and united with good results. He had been attracted by the treatment of varicose ulcer by nerve stretching, which seems to change the dystrophic nature of the ulcer. The ulcer is everted and the popliteal nerves exposed and stretched over the fingers, using considerable force, with ligation of the long and short saphenous veins, and the ulcer heals very soon. Anterior poliomyelitis cases have received great benefit from nerve anastomosis most frequently of the two popliteals. The muscles have developed and the children have been able to run and play.

The subject of injecting nerves for the relief of pain is just now occupying the attention of the profession, and great results have been reported. The fluids injected are chloroform, alcohol, osmic acid and sterilized water. The speaker has obtained forty-eight hours' complete relief from supra-orbital neuralgia by

the injection of sterilized water, but the pain gradually returned till it was as bad as before. Alcohol is the most popular remedy now, and is injected in strengths from 70 per cent. to 90 per cent., and as many as thirty injections of the same nerve have been made before a cure was effected. Schlosser of Munich, reported 100 per cent. cures, many cases having had repeated injections before cures were effected. Dr. Hugh T. Patrick has been successful in trifacial neuralgia, all his cases being benefited without any untoward results; the technic is rather elaborate and difficult for an amateur without experience and not knowing the landmarks.

Dr. G. L. Bailey, Oak Park, Ill.:—While a few of us have had much experience in the field of nerve grafting or anastomosis, it is nevertheless a subject of very great interest to the whole profession. As yet it is in its infancy and its field of application is limited by our lack of experience and ignorance of many of the problems of nerve physiology and especially of nerve development.

The principal argument against nerve grafting is that we must sacrifice a sound nerve to bolster up a weak or destroyed one, to which we can never hope to transfer all of the energy from the sound nerve. It requires endless patience and a lapse of from one to two years or even more to secure a result from this operation which is perceptible. Even where nerve anastomosis has been successfully done the amount of nerve energy transferred by the operation may not be sufficient to accomplish any practical functional good.

The greatest field for nerve grafting would seem to be in anterior poliomyelitis and in this disease it offers theoretically the ideal therapeutic measure, but unfortunately only a small number of cases of anterior poliomyelitis are suitable for this operation, namely: those in which only one nerve trunk is affected. To my mind, tendon transplantation offers much more certain results and a wider operative range without the danger of increasing the disability by sacrificing still more nerve function than has already been done away with. Tendons may be elongated by the use of silk after the method of Lange of Munich, by whose method it is now possible to affix almost any tendon directly to the periosteum at any desired point.

Of all of the nerve operations, nerve bridging is the oldest and the limit of the gap that can be overcome has been fixed at about three centimeters. The various materials which have been used to protect the nerve end from being blocked in its growth across the wounded tissues have been only moderately successful and by no means absolutely certain. For this purpose I would suggest the prepared artery of some animal as offering many advantages over cat-gut, metal, or any of the other substances which are now employed for this purpose.

Probably the most favorable field for nerve grafting is in the face and the nerves of the upper extremities, as these nerves are very accessible and particularly in the face; it is necessary to transfer only a small amount of nervous energy to operate the small muscles of the face. A case of facial paralysis of fourteen years' standing was reported much benefited by anastomosing the hypoglossal nerve on the paralyzed facial, at the last meeting of the American Orthopedic Society in Chicago.

The subject of nerve surgery is in its infancy and has been much neglected, largely on account of erroneous physiological conceptions of nerve regenerations. We have yet to learn the laws of nerve compensation by which one set of nerve cells takes up the work of another set which has been destroyed and while we know that this substitution does occur in certain cases, we are powerless to aid in its accomplishment or to know when to expect it. Clinical experience has demonstrated many of the older teachings of physiology to be erroneous, especially has it demonstrated that nerves will branch, and that one nerve trunk may supply antagonistic muscles with energy.

The essayist mentioned nerve stretching as a treatment of varicose ulcer and I can not help saying that this seems an extremely roundabout way of treating a condition when subcutaneous removal of the long saphenous vein is so much simpler and more direct.

Dr. G. C. Shockey, Melrose Park:—I have been much interested in listening to Dr. Read's paper on "Surgery of the Peripheral Nerves," and think the topic in its discussion should be confined to the peripheral nerves. As such the surgery embraces such conditions as poliomyelitis, birth and traumatic paralysis of the extremities or of the facial nerve.

Considering at the same time surgery of the spinal cord gives rise to confusion due to the difference of the physiology and pathology and their power of regeneration.

In general, the term Wallerian degeneration is loosely applied as referring to both the upper and lower motor neuron. The main anatomical difference is the neurilemma of the neurons making up the peripheral nerves, and to this is largely due the reparative process of nerves, and one of which the white fibers of the cord are not capable of following destructive lesions.

The experimental work with regard to anastomoses of the spinal nerves is interesting, but does not seem practicable after lesions causing destruction of an intervening portion of the cord. I can not see how such a bridging could take place to enable transmission or normal function over a segment of white fibers in which death had occurred from any cause and which are not capable of regeneration.

I agree with Dr. Bailey that peripheral nerve surgery is more applicable in cases of poliomyelitis in which a limited group of muscles is involved; or that better results are had in selected cases. When the lesion is more extensive likely better results are obtained by tendon grafting.

In facial paralysis the general principles of nerve anastomoses are the same and results should be equally good. My impression is that they are better when the hypoglossal is used instead of the spinal accessory nerve.

Since Dr. Roberts refers to the injection of nerves in cases of trifacial neuralgia, I would differ as to deep injection being elaborate in technic, assuming that you know the anatomical point where you want to make the injection, which must be at the point of exit of the nerve from the cranium. With this in mind it may be done in the office without a general or local anesthetic. This method is applicable to the severe types of neuralgia, such as usually seek radical surgical operations.

Dr. H. T. Patrick has reported a number of cases so treated, and his results have been gratifying.

It is to be understood some will have to be injected two or more times at long intervals. On the two cases I have seen the deep injection done, the technic in itself is quite simple. I should not expect to get more than temporary and transient relief from injections made at the periphery.

In a word, the best understanding of surgery of the peripheral nerves will come from keeping clearly in mind the anatomical and pathological conditions as they occur in the peripheral nerves and the cord, and that the reparative power of the nerves does not apply to the spinal cord.

Dr. Read (closing the discussion):—In closing I would say that Dr. Roberts and Dr. Bailey are doubtless right in giving the preference at present to tendon transplantation over nerve anastomosis in the great mass of palsies following infantile paralysis. The latter operation is as yet in its infancy and the results so doubtful as to cause the surgeon to hesitate before he interferes with the function of a healthy nerve in an already damaged extremity for the sake of conferring a doubtful benefit. However, our mastery of this work is not yet complete and it is only by continued effort along this line that we can ultimately make sure as to its efficacy.

As to the question concerning the term of Wallerian degeneration as applied to the peripheral nerves and the possibility of autogeneous regeneration where there is a neurilemma. I can only fall back upon the authority of Halliburton as quoted before and upon the statement of Cassirer in his article upon

neuritis in the *Deutsche Klinik*. The former tells us that he has never seen an axis cylinder formed in a distal stump when due precautions were taken to prevent union with the central one. Cassirer speaks of Wallerian degeneration taking place in severed peripheral nerves, and also states that it can with the utmost difficulty only, be differentiated from the degeneration succeeding inflammation.

As to the possibility of the anastomosis of the spinal nerves, the experiments of Kilvington were only cited as an example of what we may yet be able to accomplish in work along this line. Such efforts are stimulating to endeavor upon the part of other men at least, even if they never amount to anything in themselves.

LAWRENCE COUNTY.

The Lawrence County Medical Society held its third quarterly meeting in the City Council Hall, Lawrenceville, Ill., Sept. 7, 1908, at 1 p. m., Dr. H. V. Lewis presiding. The following physicians of the county were present: Drs. Brian, McMurray, Friend, Turner, Mountz, McDowell, Petty, Trout, Hayhurst, Emmons, Sprinkell, Duncan, Schrader, Lewis, Bryant, Purdy, French, Trueblood, Lewis and Gore. Dr. T. J. McGowen, of Vincennes, visitor.

The subject, "The Care of Women Through Pregnancy," was taken up by Dr. McMurray, of St. Francisville. The doctor's discussion fired the meeting with enthusiasm, so much so that the discussion was entered into by Drs. McDowell, French, Bryant, Mountz, McGowen, Friend, Petty and Trueblood. Dr. C. J. Sprinkell, of Russellville, considered the subject, "Summer Diarrheas of Children." The subject was very ably handled by the doctor and was discussed by Drs. Hayhurst, Duncan, Lewis, McDowell, Trout and McMurray.

A very important event of the day was an entertainment given the physicians' wives of the county at the home of Mrs. J. D. Bryant. The physicians and their wives were entertained at a banquet in the evening, given by the physicians of Lawrenceville. This meeting was an enthusiastic one from beginning to end, and all members claim the time well spent.

H. V. LEWIS, President.

MADISON COUNTY.

The Madison County Medical Society met in quarterly session in the Commercial Building in Alton, Ill., Sept. 4, 1908, at 2 p. m., Dr. Waldo Fisher, president, in the chair. Members present: Drs. Wadsworth, Burroughs, Foulds, Barnsbaek, Ferguson, Fisher, J. H. Fiegenbaum, Johnson, H. R. Lemen, Dugan, Ihne, Yerkes, Haskell, Bowman, Joesting, Robinson, Beard, Cook and E. W. Fiegenbaum. Visitors: Drs. Horine of Brighton, Ill.; Early, Parl Howe, Emma Howe, of Granite City; and Winn, of Alton. On motion the courtesy of the society was extended to all visiting physicians. The applications of Dr. A. F. Kaeser of Highland, together with proper credentials from the McLean County, (Ill.) Medical Society, was presented, and by unanimous vote he was elected a member of this society by transfer. The death of Dr. L. F. Schuessler being announced, the chair appointed as a committee on resolutions, Drs. H. R. Lemen, J. H. Fiegenbaum and L. Bowman.

The topic of the day, "The Physician as a Business Man," was very ably presented by Dr. T. L. Foulds, of Alton, in a very interesting paper, and the different phases of the business life of a physician were fully brought out in a general discussion, participated in by nearly every one present, led by Drs. J. L. R. Wadsworth of Collinsville and H. C. Early of Granite City. A vote of thanks was tendered to the Retail Merchants' Association for the use of room, to the Alton Medical Society for refreshments, and to Mr. Geo. Marsh for a box of cigars. On motion adjourned to meet in annual session at Alton on the first

Friday in December. This was one of the most profitable sessions of the year, and was the source of great interest to all that attended. The society is growing in numbers with every meeting, having more than two-thirds of all the physicians in the county enrolled as members.

E. W. FIEGENBAUM, Secretary.

UNION COUNTY.

Meeting of July 29, 1908.

The Union County Medical Society met in Chemical Laboratory of Union Academy at 2 p. m., July 29. Meeting called to order by President D. W. Gear. Twelve out of the seventeen members were present and six visiting doctors. Dr. T. Le Agnew read a paper on "Acute Dysentery, Especially among Children," which brought out quite a discussion on the treatment. Drs. O. J. Schwer and S. C. Martin reported a case of brain trouble which was quite puzzling, which was discussed. Dr. Gear reported a case of puerperal eclampsia which was discussed by Drs. Agnew and Schwyer. After some discussion a committee of five from different sections of the county was appointed to draft a fee bill to be discussed at the next regular meeting. The Union County physicians are waking up to the fact that it pays to belong to the County Society.

E. V. HALE, Secretary.

WABASH COUNTY.

The regular meeting of the Wabash County Medical Society was held at Dr. Schneck's Hall, Mt. Carmel, July 28, at 3 p. m., with Dr. R. J. McMurray, president, in the chair. Members present: Dr. R. J. McMurray, St. Francisville; Drs. Maxwell, Utter, Mercer and Schneck of Mt. Carmel; also Judge E. B. Green and Dr. T. H. Daly, D.D.S., of Mt. Carmel. Program: Paper, "Is it Physiologically Impossible to Sweat Blood?" Judge E. B. Green; paper, "Some Points of Interest to Both Physicians and Dentists," Dr. T. H. Daly, D.D.S. Both papers were very much appreciated by all present and a vote of thanks extended to both. Dr. S. W. Schneck gave a short report of the meeting of the American Medical Association. It was moved that a committee be appointed to arrange for the October meeting at some other point in the county outside of Mt. Carmel and the motion was carried. The president appointed the following committee: Drs. Schneck, Maxwell, Utter and Mercer.

W. ELMER MERCER, M.D., Secretary.

NEWS OF THE STATE.

PERSONAL.

Dr. George E. Fosberg and family, Chicago, have returned from Europe.

Dr. and Mrs. William N. Senn, of Chicago, have returned from Europe.

Dr. Alonzo B. Middleton and family, Pontiac, sailed for Europe August 29.

Dr. and Mrs. Philip S. Doane, Chicago, expect to sail from Europe October 17.

Dr. and Mrs. Edward L. Moorhead and son, Chicago, have returned from Europe.

Dr. and Mrs. John B. Murphy, Chicago, sailed for home from Europe September 12.

Dr. Henry R. Harrower has closed his laboratory in Kankakee and moved to Chicago.

Dr. J. Earl Meloy and wife have returned to Lincoln after several months' visit in Europe.

Dr. P. J. H. Farrell, Chicago, has been elected commander-in-chief of the Army of the Philippines.

Dr. and Mrs. Charles J. Drucek, Chicago, are spending a month about Quebec and the Saguenay River.

Dr. Charles E. Crawford, Rockford, has been re-elected grand medical advisor to the Sons of St. George.

Dr. Alexander H. Ferguson, Chicago, sailed September 9 to attend the meeting of the International Surgical Congress in Brussels.

Dr. Frederick W. Mercer, Chicago, was recently very seriously injured by a fall from the third floor to the parlor floor of his house.

Dr. S. S. Fuller has been appointed Health Officer of the city of Paxton, in accordance with a new ordinance adopted by the council July 6, 1908.

Dr. A. M. Earcl and wife, Hoopston, Ill., leave October 2 for Europe, sailing from Quebec. The doctor will do post-graduate work in Vienna and London.

Dr. Jacob Frank, Chicago, has donated 400 volumes on medical and surgical subjects to the Columbus Hospital, Chicago, to provide a reference library for internes.

Dr. George Mitchell, first assistant physician at the Illinois General Insane Hospital, South Bartonville, has started for a year of rest and study in Africa and Europe.

Dr. Antonio Lagorio, Chicago, who has been taking treatment at his own Pasteur Institute on account of infection from a wound from the bone of a rabbit which had been inoculated with rabies, is reported to be out of danger.

NEWS ITEMS.

The students of Dr. Byron Robinson are erecting a bronze bust to him. The affair is in the hands of Dr. Benjamin H. Orndoff, 2277 Wilcox Avenue, Chicago.

Drs. Emanuel J. and William N. Senn, Chicago, have presented to the John Crerar Library more than two thousand volumes from the library of the late Dr. Nicholas Senn, to be added to the Senn collection.

Dr. O. J. Preece, Chicago, was exonerated from all blame in connection with the death of a young child August 19. It was found that the prescription for creosote given by Dr. Preece was filled by a druggist's clerk with 90 per cent. carbolic acid.

The contract for the building for the new hospital for tuberculosis on the grounds of the Cook County Hospital, Chicago, has been awarded for \$220,900 to the lowest bidder. The new building will be five stories in height, 162 feet long, with three wings, each 128 feet long, and will accommodate 320 patients.

Beginning September 8 each Chicago school medical director will make a daily visit to each school assigned him. At the first visit the inspector will make a rapid inspection of all pupils to determine if any seeking admission bear evidence of contagious disease. More detailed inspections will be made later.

The Lake County Antituberculosis Association has been organized at Waukegan, with Dr. John G. Foley president and Dr. W. H. Waterson manager. The association expects to erect a building capable of accommodating twenty patients, on the edge of Waukegan and near the lake, to cost about \$10,000. In addition to its tuberculosis colony, the association intends to conduct an educational campaign among the people of the county.

At the Physicians' Annual Golf Tournament, Chicago, Dr. Franklin H. Martin won the championship, which carries with it the possession of the Dickerman cup for a year and a gold medal. Dr. William H. Wilder was the runner-up and received a silver medal. The Billings trophy was secured by Dr. F. H. Daniels. Dr. H. H. Mather captured the Lynch cup, and Dr. G. W. Mosher secured the low gross score and the gold medal to commemorate it. At the annual meeting held after the tournament, Dr. G. W. Webster was elected president, Dr. R. Crowder secretary for the coming year, and Drs. Dodson, Plumber and Stevenson are directors.

A POINT IN THE USE OF THE TALLQUIST SCALE FOR HEMOGLOBIN ESTIMATIONS. —Walter H. Buhlig presents some comparisons of the readings of different sized drops of blood on the Tallquist scale with the results from the same patient on the Dare instrument. Taking a drop of blood of the size of the perforation in the color scale, the readings were practically always low, taking the Dare as a standard. When a spot of twice that size was read, the results obtained agreed very closely with those from the Dare.—*Quarterly Bulletin of the Northwestern University Medical School*, September, 1908.

MEDICAL SOCIETY NOTES.

The Tri-State Medical Society of Iowa, Illinois and Missouri held its annual meeting September 8 and 9 at Ottumwa, Iowa. An admission fee of \$3 was charged which entitles the members to a certificate of membership and attendance.

The Mississippi Valley Medical Association will hold its annual meeting October 13, 14 and 15, at Louisville, Ky. The president of this organization is Dr. Arthur R. Elliott, of Chicago, and Dr. Henry E. Tuley, of Louisville, is secretary.

The Clay County Society met in regular quarterly session Tuesday, September 1, at Clay City, Ill., at 1:30 p. m. Dr. G. C. Pridmore read a paper on eclampsia which was very instructive. The meeting adjourned to meet at Flora, Ill., the second Tuesday in December, next.

At the August meeting of the Galesburg Medical Society resolutions were adopted that the newspapers of the city be requested to refrain from mentioning names of physicians in connection with their professional work; and furthermore, that a copy of the resolutions, together with a petition to be signed by the physicians, be presented to the newspapers for publication.

 PUBLIC HEALTH.

The first public bath in the Twenty-fourth ward, Chicago, and named in honor of the Dr. Fernand Henrotin, was formally dedicated September 1. The bath house has twenty-shower baths and is located at Ashland and Fullerton Avenues.

In Chicago there were 348 more deaths in August than in July, and 132 fewer deaths in August than in the corresponding month last year. The deaths from all causes were 2,690, of which acute intestinal diseases caused 815; consumption, 288; heart disease, 198; violence (including suicide), 194; nephritis, 157; cancer, 124, and pneumonia, 120.

The Department of Health of Chicago has sent out notices to physicians worded as follows: "The Department of Health suggests: Why not use tuberculin and diagnose your case of consumption now? Why wait until there is no hope? Which policy is best for your patient,—for the community,—for you? The department will give you the tuberculin."

The State Board of Health in the May and June issues of its *Bulletin* have published a report of the extensive examination of the municipal water supply of Illinois, conducted under the auspices of the State Board of Health and the State Water Survey. The report also contains several analytical tables of the various water supplies in different counties. In the June issues of the *Bulletin* is to be found the index to the two issues; also part of the *Bulletin* is devoted to the discussion of the sewerage system and the water supply of Chicago.

The Chicago Department of Health in its weekly *Bulletin* gives a full summary of the deaths resulting from diarrheal diseases during August. The diarrheal diseases claimed 818 deaths during the month of August, 30 per cent. of the total from all causes and 546 more than all forms of

tuberculosis, which was second in order of highest mortality. Of these 818 deaths 718 or 87.8 per cent. were among children under 2 years of age. Twelve were 7 days to 6 months old, 239 were from 6 months to 1 year, 138 from 1 to 2 years and only 190 were among persons over 2 years of age. Deaths from the diarrheal diseases among children of foreign parentage exceeded the deaths of children of native parents by 327 or more than 172 per cent. The location of all diarrheal disease deaths among children under 2 years of age occurring during August is shown to be in the west side river wards, in the district southwest of the Union Stock Yards and in the South Chicago rolling mills district near the mouth of the Calumet River. They are thickest where the Slavs live. Children of Slav parents suffer much more generally from diarrheal affections than do children of other nationalities. The deaths in proportion to the population are also very much higher in the thickly settled areas than in the other parts of the city. During the seven weeks that the department has maintained a force of 75 medical inspectors in these areas of highest mortality for the purpose of instructing mothers in the proper care of their babies during the hot weather, visits have been made at the homes of 43,784 families. Of the 204,341 persons comprising these families 11,099 were children under 1 year of age, 26,741 were between 1 and 5 years and of the remainder, 94,535 were children of 5 years of age. The inspectors found 2,410 cases of sickness, mostly diarrheal affections, and on inquiry as to the vaccinal status of members of these families found 24,702 unvaccinated persons. It is of interest to note that 76.2 per cent. of the babies in the congested areas of the city—the foreign quarters—are being fed mother's milk. This is in decided contrast with infant feeding conditions in the better residence portions of the city where the proportion breast fed is much lower. It has been the observation of the medical men that the chief trouble lies in the feeding of improper foods and overfeeding. Our experience of the summer in this work emphasizes the necessity of educating mothers in the care of their young. It is a most important service and with persistent and vigorous prosecution we believe that it will, in due time, be the means of cutting the infant death rate in two.

NEW INCORPORATION.

The secretary of the state in Springfield has licensed the following corporation: Dr. Liroch Company, Chicago; capital, \$2,500; general medicine business and dispensary; incorporators, Willis H. Hutson, Richard H. Mather and A. M. Olson.

MARRIAGES.

HARRY KAMEN M.D., to Miss Grace Strasser, both of Chicago, September 2.

CHARLES F. ISAACS, M.D., to Miss Iva Hasset, both of Chicago, August 29.

ALFRED C. WIEBUSCH, M.D., Cora, Ill., to Miss Anna Fiene, of Steeleville, Ill., August 20.

FREDERICK W. BARRY, M.D., to Miss Bertha Alene Allen, both of Coffeen, Ill., August 24.

BERT M. BREWSTER, M.D., Fieldon, Ill., to Miss Leila M. Chambers, of Godfrey, Ill., Aug. 17, 1908.

DEATHS.

HENRY ALPERS (examination, Illinois), of Aviston, Ill.; died recently and was buried from the home of his son in Lincoln, Ill.; August 7.

SAMUEL G. BRYNING, M.D., medical department, Victoria College, Toronto, 1863; for nearly a third of a century a practitioner at Fulton, Ill.; died in a sanitarium in Chicago, January 8, aged 81.

ELBERT FERGUSON NEBEKER, M.D., College of Physicians and Surgeons, Chicago, 1906; a member of the Illinois State Medical Society; died suddenly at his home in Danville, August 27, aged 27.

ALEXANDER G. ORR, M.D., Jefferson Medical College, Philadelphia, 1869; a member of the Illinois State Medical Society; died at his home in Benton, August 25, from cerebral hemorrhage, after an illness of a few hours, aged 68.

AVA MICHENER, M.D., University of Iowa, College of Medicine, Iowa City, 1888; of Homer, Ill.; a member of the Illinois State Medical Society; died in El Paso, Texas, August 20, from asthma, after an illness of about two years, aged 75.

MARY H. BOWEN, M.D., Northwestern Universty Woman's Medical School, Chicago, 1876; for thirty years a practitioner of Chicago; died at the home of her son, August 29, from paralysis of the throat, after an illness of six months, aged 74.

EDGAR L. PHILLIPS, M.D., medical department of Washington University, St. Louis, Mo., 1856; surgeon of an Illinois volunteer regiment during the Civil War; for many years a practitioner of Galesburg, Ill.; died at his home in Goshen, N. Y., September 1, after a prolonged illness, aged 61.

BOOK NOTICES.

THE READY-REFERENCE HANDBOOK OF DISEASES OF THE SKIN. By George Thomas Jackson, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York. Sixth edition. 12mo., 737 pages, with 99 engravings and 4 plates, in colors and monochrome. Cloth \$3.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

The sixth edition of Dr. Jackson's handbook testifies to the popularity of the work. The author has recently been elected to the full chair of Dermatology in the College of Physicians and Surgeons, New York, and is therefore in a position to know the requirements of the medical practitioner. A table disposes of the subject of classification and nomenclature in the briefest and clearest way by arranging the various diseases in the most rational position with a permanent primary lesion motion. The book is also rich in formulas of proved value in this trying class of cases. The publishers have succeeded in producing a handsome work at a very moderate price.

THE PRINCIPLES AND PRACTICE OF GYNECOLOGY. E. C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School; Gynecologist to St. Luke's and Wesley Hospitals, Chicago, etc. Fifth edition, revised and enlarged, with 431 illustrations and 20 full page plates in colors and monochrome.

Dr. Dudley in his profession explains his manner of treating the subject under consideration and his reason for considering the divers diseases so far as practicable according to their pathological and etiological sequence. The great popularity of this work in the past disposes to the success of this plan. He has also made a thorough going revision of the text, which includes the recent advances in gynecology, and in so doing has condensed, rewritten and rearranged many parts, and in this way has found space for considerable new matter without materially enlarging the volume. Special changes and practical additions have been made in those chapters treating of salpingitis, ovaritis, pelvic peritonitis, myoma uteri, carcinoma uteri, descent of the uterus and retroversion and retroflexion and a chapter on incontinence of urine in women has been added. A surgical instrument catalogue element has been eliminated, all instruments, so far as practicable, being shown as they appear in actual work. Undoubtedly the new edition of Dr. Dudley's work will maintain the popularity heretofore accorded the previous editions.

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F.R.S., late Lecturer on Anatomy at St. George's Hospital, London. New American edition, enlarged and thoroughly revised, by J. Chalmers Da Costa, M.D., Professor of Surgery and Clinical Surgery, and Edward Anthony Spitzka, M.D., Professor of Anatomy, in the Jefferson Medical College of Philadelphia. Imperial octavo, 1625 pages, with 1149 large and elaborate engravings. Price, with illustrations in colors, cloth, \$6.00, net; leather, \$7.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1908.

The seventeenth edition of Gray's Anatomy retains the high standard which has been expected of this publication for the past fifty years. Gray's Anatomy bears the same relation to the medical world that Webster's Dictionary does to the literary world. This edition proves that the popularity of the work is destined to remain as great in the future as it has in the past. It has been thoroughly revised, every page bearing alteration and improvement, and the whole section on the nervous system has been rewritten in conformity with recent revolutionary changes in methods of approaching and viewing it. Professor Spitzka, who has done this section, has made the subject a special field of study and to the qualifications of an anatomist of the first rank he adds the skill of an artist as well, so that his own hand conveys his knowledge directly to the eye of his reader. Professor Da Costa is both an anatomist and a surgeon, and the editorial combination therefore unites what is required for the revision of a work on this subject. The use of colors is still further developed in this new edition. We bespeak for the new Gray the cordial reception to which its merits entitle it.

PAIN: ITS CAUSATION AND DIAGNOSTIC SIGNIFICANCE IN INTERNAL DISEASES.

By Dr. Rudolph Schmidt, Assistant in the Clinic of Hofrat von Neusser, Vienna. Translated and edited by Karl M. Vogel, M.D., Instructor in Pathology, College P. and S., Columbia University; Clinical Pathologist and Assistant Attending Physician, St. Luke's Hospital, and Hans Zinsser, A.M., M.D., Instructor in Bacteriology, College P. and S., Columbia University; Assistant Pathologist, St. Luke's Hospital. J. B. Lippincott Company, Publishers, Philadelphia and London.

One of the most popular works read by the physicians of the last century was the one entitled, "Rest and Pain." A new work along this line has just been issued by the J. B. Lippincott Company of Philadelphia and London, writ-

ten by Dr. Rudolph Schmidt, of Vienna, and translated and edited by Drs. Vogel and Zinsser of Columbia University, New York. The subject of Pain is discussed in ten chapters, all of them full of interest to the physician. It is considered in a most systematic manner and a scheme evolved which will simplify and hasten correct conclusions. This work should prove a very valuable addition to the working library of the busy physician.

==ERRATUM==

In our last issue of THE JOURNAL in the supplement, under subheading "Apparently Cured," it reads, "All constitutional symptoms and expectorations with bacilli *present* for a period of three months," should read "all constitutional symptoms and expectorations with bacilli *absent* for a period of three months."

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ORIGINAL ARTICLES

PLACENTA PRÆVIA.*

F. D. HOLLENBECK, M.D.

CHICAGO.

Although during the past few years there has been little, if any, advance in our knowledge of the causation or of the pathology of this condition and no startling innovations in the manner of treatment that have been generally accepted, it is with no apology that I present a paper before you under this heading. My personal experience is limited to three cases, but my experience in postgraduate teaching and the expressed opinions of fellow-practitioners leads me to believe that the importance of this condition is underestimated and also that there is a rather wide divergence of opinion as to the correct method of treatment.

In placenta prævia the placenta is implanted upon that portion of the uterine wall which becomes the lower uterine segment in labor, between the contraction ring and the internal os. It is by far the most frequent cause of antepartum hemorrhage. Its frequency is variously estimated at from one in two hundred and fifty to one in fifteen hundred cases. Considering the unrecognized cases and also the accepted fact that it is a rather fruitful cause of early abortion and miscarriage, we must amend our estimates.

Various theories as to the causation of low implantation have been advanced, many of which have been shown to be erroneous or purely speculative and need not be discussed here, except possibly to note the simple theory advanced by Webster that it may explain the low implantation of the ovum by supposing that fertilization of an ovum may take place in the lower uterine cavity. Among those most generally accepted are endometritis and multiparity. It occurs very infrequently in the

*Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 20-22, 1908.

primiparæ, the percentage raising with the number of labors. Rapidity with which labors succeed each other bears a direct relation to its frequency. These accepted ideas and also the fact that the placenta is practically always pathological, thin and eccentrically developed, seem to bear out Strassman's theory that the imperfect vascularization of the decidua, the result of inflammation or atrophic change, due to repeated and closely following pregnancies, limiting the amount of blood going to the placenta, causes it to spread out, seeking a larger area from which to extract its blood supply, thus approaching or covering the os. I speak of the developmental varieties only to note that Webster mentions the reflexal variety as a probably frequent cause of early abortion and miscarriage. For all practical purposes the varieties may be limited to the complete or central and the incomplete or partial.

SYMPTOMATOLOGY.

As before noted, placenta prævia is by far the most frequent cause of antepartum hemorrhage. This hemorrhage may be single, enormous and fatal, or may be repeated, varying in quantity and results; it may be continuous, slight or oozing, which, if allowed to continue, may have as serious results as the more spectacular hemorrhages. This is often dependent upon no external cause. The patient may awake from a profound sleep drenched with blood. There may or may not be pain, but there are always contractions; the hemorrhage is due to the separation of the placenta from a portion of its attachment or rupture of the placental vessels. The diagnosis is confirmed by vaginal examination and in cases where there is a non-patulous os, digital exploration may be made under ether; it may precipitate labor, but this is not a contraindication. With the complete variety a stringy or spongy mass is felt between the presenting part and the examining finger and in the incomplete, the edge of the placenta may be easily determined.

PROGNOSIS.

There are various factors outside the primary hemorrhage which render the outcome serious, uterine inertia favoring weak contractions and tending to postpartum hemorrhage; on account of the wide attachment, adherent placenta is frequent; in primiparæ it is a very serious condition on account of the superior tone of the cervix. Careless interference, too rapid dilatation of the cervix or too rapid extraction through an imperfectly dilated os have served to increase the maternal mortality. Abnormalities are much more frequent, and repeated hemorrhages increase the risk. Infection, phlebitis, embolism and subinvolution all serve as factors to render morbidity and mortality greater. The maternal risks are generally considered less before the seventh month. Maternal mortality, formerly 30 per cent. to 38 per cent., now reported as from 1.45 per cent. to 21 per cent. Fetal mortality is now, always has been and promises to continue high, is variously estimated at from 50 to 70 per cent.; prematurity, asphyxiation and operative interference are the most important factors.

TREATMENT.

A careful study of the prognosis of this condition and the results of the different methods of treatment suggested by different authors leads to an inevitable conclusion, and in this I agree with Lyle that considering the high fetal mortality under any and all forms of treatment, and though we deliver the living child, few survive beyond the second or third week; of those who do survive few become robust by reason of their bad start; and considering it is granted that the best treatment for the mother is worse for the child and the best for the child is worse for the mother, our conclusion must be that if we have a form of treatment that assures a low maternal mortality it is incumbent upon us to adopt that treatment. It must be granted also that the mother is a much more important factor socially and economically than any prospective infant can possibly be; therefore, I repeat that we are bound to accept any form of treatment that can be shown to give the lowest maternal mortality. The best results so far attained may be attributed to the method of terminating pregnancy immediately a diagnosis of placenta prævia is made by bringing down a foot and leaving Nature to complete the labor. As these cases are especially susceptible to infection by reason of the wide placental attachment the unusual vascularity of the lower uterine segment and also the anemia secondary to hemorrhage, creating a lowered resistance, asepsis should be as near perfect as possible. It goes without saying that the operator, assistants and the patient should be as thoroughly prepared as though laparotomy were to be performed. I would suggest the use of rubber gloves, as I have experienced no difficulty in using the gloved hand. The patient should be carefully prepared, bowels and bladder emptied, genitalia shaved and scrubbed, thighs, abdomen and all adjacent parts rendered as sterile as possible. Diagnosis of position and presentation should be carefully and exactly made out. The patient should be placed on the table in a dorsal position and anesthetized.

If the head presents, external version may be attempted. This is possible in a certain percentage of cases, or version may be so far carried out that it is easy to seize a foot. If external version is impossible, when the cervix is dilated sufficiently to admit two fingers, the method of Braxton Hicks, or combined version, can be done. The whole hand is introduced into the vagina. The hand corresponding to the position of the back of the fetus is generally recommended, though it is a matter that can be safely left to the choice of the individual operator. The index and the middle finger are carried through the cervix, the membranes ruptured if incomplete and if complete going through the placenta; with the finger tips pressure is made on the brow of the fetus, taking care when pushing head up to maintain flexion. The other hand is used to push head up externally until the foot can be seized between the two fingers. During this time the assistant is making pressure on fundus pressing the buttocks over and down as the foot is drawn through the cervix into the vagina and version is completed. Traction is continued until the knee appears at the vulva; a firm abdominal binder is applied

and the patient left to Nature for the completion of the labor, which usually occurs within a few hours. If hemorrhage is not entirely controlled, gentle traction on the protruding leg generally suffices. The method of bringing down one leg creates a cone-shaped plug of the fetus, making pressure between the buttocks and the pelvic bones, thus controlling the hemorrhage. This operation in transverse and breech presentations varies only in degree, but the object and the results are the same. The Braxton Hicks version has the advantage of confining the manipulation within the membranes, lessening chance for infection.

TREATMENT FOR THIRD STAGE.

The high percentage of cases in which the third stage is pathological renders it important to be prepared for any emergency. The placenta should be delivered immediately, in many cases it will be found detached and simple expression is all that is necessary. If adherent it must be removed manually, carefully separating it from its attachment. If there is postpartum hemorrhage it should be treated as occurring in other labors. Ergot hypodermically, massage, and intrauterine douche of saline solution at 120 degrees Fahrenheit are usually sufficient. After the hemorrhage is controlled, if the condition of the patient indicates it, hot normal salt solution may be given subcutaneously or per rectum. The lower end of the bed may be elevated to reduce pelvic blood pressure and during the early puerperium the patient should be kept quiet.

It seems hardly necessary to state here that at no time after the diagnosis of placenta prævia is made should the patient be left unwatched and that after the operation is begun the obstetrician should be in constant attendance until labor is complete and the patient seems in no immediate danger. It is usually necessary to remain with the patient much longer than the classical hour after delivery of the placenta.

I am convinced that this method of treatment should be applied to all cases of placenta prævia, as soon as diagnosis is made, with these variations: When primary hemorrhage occurs before dilatation is sufficient the vagina may be packed. For this purpose I prefer small pledgets of cotton squeezed out of some mild antiseptic solution, e. g. lysol $\frac{1}{2}$ per cent. to 1 per cent., these to be packed closely about the cervix and the vagina filled to its capacity. This will usually control the hemorrhage and at the same time excite uterine contractions and cause dilatation of cervix. These may be left in 6 to 8 or even 24 hours, provided no hemorrhage and insufficient dilatation may be renewed. When hemorrhage can not be controlled in this manner the cervix may be dilated manually after the Harris method and the operation completed as detailed. Also where full dilatation has taken place the head may be pressed down into pelvis and forceps extraction made.

As maternal risks have been shown to be less before the seventh month, palliative treatment may be considered, but should be strictly limited to those patients who can have adequate hospital care and be continually under the eye of a competent physician, but in no case that shows excessive or repeated hemorrhages should treatment be delayed, but pregnancy

should be terminated at once by the means suggested, and I believe the time will soon come when it will be generally accepted that pregnancy must be terminated as soon as diagnosis is made in all cases. The use of the colpeurynter is open to the objection that it pushes the head up and does not allow it to descend and because it is liable to rupture the lower uterine segment.

Cesarian section may be safely left to that class of cases in which it is primarily indicated. Rapid extraction through an imperfectly dilated cervix is to be utterly condemned. Tears are almost certain to occur on account of the friability of the lower uterine segment, leading to still further hemorrhage and increasing maternal mortality. The patient is already exsanguinated and suffering from three-fold shock of hemorrhage, anesthetic and operation and the delay enables the patient to recover from the shock, the uterine musculature to resume its tone, allows time for coagulation to occur in the uterine sinuses and lessens the liability of postpartum hemorrhage.

This condition is serious always and often desperate. The indications are plain and in sequence of importance to stop the hemorrhage, dilate the cervix and deliver the child and always consider the safety of the mother paramount. There is no other method that offers us so low a maternal mortality. This is the method used at the Rotunda Hospital, Dublin, since 1899. They have had 155 cases of placenta prævia with six maternal deaths—one from pulmonary embolism the eighteenth day after delivery, three from sepsis introduced before the patient arrived at the hospital, in one case a midwife had tamponed the vagina with a dirty rag, one died from hemorrhage on the table, and one ~~had~~ hemorrhage following a forceps extraction, causing the rupture of the lower uterine segment. Goldstein reports eleven cases treated by this method without a single maternal death. Strassman's reports show a maternal mortality for this method of 1.45 per cent., by internal version 8½ per cent. and for version and extraction 20 per cent. Of the following cases one only had the advantage of hospital care:

Mrs. A., age 37, vi-para, diagnosis made after spontaneous rupture of the membranes with single hemorrhage of several hours' duration. When I first saw her the membranes had just ruptured and as the head was well down and hemorrhage had stopped the labor was allowed to proceed without interference. Diagnosis of marginal placenta prævia was made from the hemorrhage and examination of the placenta and membranes. This case was normal except that the puerperium was retarded on account of anemia and subinvolution.

Mrs. X., age 43, xii-para, mother of eight living children, hemorrhaged for three or four weeks and kept in bed by her physician. I was called in consultation, found the patient exsanguinated, pulse 130, and hemorrhaging freely. Diagnosis of complete placenta prævia made. The patient was etherized, found cervix dilated sufficiently to admit two fingers, also head presentation, position O R A. Version was done, bringing leg out of vulva to knee. Spontaneous labor occurred in about three hours. The placenta following immediately after child was dead. Puerperium was much retarded.

Mrs. H., age 39, vii-para, brought to the hospital with history of hemorrhage antepartum and still bleeding. Diagnosis of complete placenta prævia was made. Version was done as above. The labor occurred nine hours afterward. The child

was dead, placenta following immediately. The mother died one-half hour later from postpartum hemorrhage. I might say that this case was left in charge of interne after version was completed.

DISCUSSION.

Dr. Joseph B. DeLee, of Chicago:—I was very much amused at the exodus from the hall when this paper on placenta prævia was announced. Placenta prævia is three times as frequent as broken back. It has more live interest for the general practitioner and also for those surgeons that are specialists in the smaller cities. The mild cases have a small mortality. The severe cases have a mortality that is given by various collators as from 25 to 75 per cent. The latter class has a mortality for children of nearly 100 per cent. The mortality, therefore, of placenta prævia is about twice as great as the mortality of broken back. I mention these points to emphasize the necessity for the introduction of obstetric papers in meetings of this class.

There is no place in all medicine or surgery where the services of a skilled hand are required as they are in the practice of obstetrics, and particularly in the presence of a complication of this nature. I speak with particular poignancy because of the last case I had the privilege and pain of attending died practically under my hands from the complication of placenta prævia, and it showed that a man who has had a great deal more experience than is the lot of most of us will have patients who will die in spite of a hospital, six internes, half a dozen nurses, and all the knowledge we have to-day regarding the cure of placenta prævia.

To bring out the points I desire to make I will cite the case. The mother of six living children, whom I had known for twelve years, whom I operated on for appendicitis three years ago, who had a prolapse of the uterus which I replaced with a Watkins-Wertheim operation, and who made a perfect recovery, and whom I delivered before, complained last week of a loss of blood amounting to two teacupfuls. She was sent to the Wesley Hospital and put in bed. She was seven and one-half to eight months pregnant. There were no symptoms of trouble before. Monday night I examined her simply to make a diagnosis. On introducing the finger into the cervix I found the internal os contracted, so that only the tip of the finger could gain entrance. I could not reach any of the presenting parts or the placenta, but there was offered resistance resembling a very soft blood clot. There was no anemia. The patient looked apparently well, had rosy cheeks and red lips, and gave no indication of impending death. To make the diagnosis I forced the finger in a little bit further, and at the end of about an inch and a half I came upon the edge of the placenta high up and to the back. It was a complete placenta prævia. The placenta was spanned over the lower uterine segment, and the distance between the festooned placenta and internal os was an inch and a half. On removing the finger a stream of blood followed as thick as the os would allow. I immediately inserted the finger again, shut off the hemorrhage, and put the woman to sleep and did a Braxton Hicks' version, which, according to Dr. Hollenbeck's paper, is the best and most recognized treatment, and heretofore in an experience of 59 cases of placenta prævia I found it very reliable and a very successful procedure. I experienced the greatest difficulty in getting the foot down; I could get it over the os, but it was impossible to grasp it, the os being so small. I dilated the os to insert the tip of the second finger, and by the use of forceps I succeeded in bringing the leg through and pulling the thigh against the placenta and in checking the hemorrhage. I fancied we had the case under control, as I have always succeeded before in controlling hemorrhage, but a dark brown extravasation appeared in the left labium and gradually extended. I diagnosed hematoma of the vulva and believed that in my manipulations I had ruptured one of the varicose veins of the vulva, and that blood was exuding into the connective tissue, producing a hematoma. I discussed with myself the propriety of splitting the hematoma and of turning out the clot. I am very glad I did not do this because it turned out not to be a hematoma, but an

infiltration of blood similar to that which occurs in bleeders where, after a small operation, the tissues are infiltrated with blood from abnormally constituted blood vessels or from abnormally constituted blood. The question was how to deliver through the narrow cervix in the presence of the hematoma that reached the size of an orange and the woman already beginning to show signs of hemorrhage. I left things to Nature; instructed the interne to put a little traction on the leg, four ounces to half a pound, and everything went along apparently well except the hematoma grew larger. That was at 6 o'clock in the evening. At 7 o'clock the first operation was completed; at 10 o'clock the baby was born spontaneously. Before the baby was born the woman's countenance changed; there were signs of shock, and I diagnosed rupture of the uterus; after the delivery of the child, which was dead, part of the placenta came away, and on making an internal examination I found the rupture of the uterus had extended into, but not through the broad ligament, though there was no particular hemorrhage, but a constant oozing of lake-colored blood in which the hemoglobin is dissolved in the serum. In the meantime, the hematoma grew larger. The woman had gone into collapse, and rapid operating was necessary. I removed the placenta. The uterus contracted well; I packed it tightly. Inside of five minutes, as the gauze packing was saturated and blood was exuding externally, I removed the gauze, packed again, and sewed up the uterus with twelve sutures, closed the uterus over the gauze, packed the vagina tightly with cotton, and in a few minutes the hemorrhage was controlled. I gave her two quarts of saline solution and stimulants, and she rallied for a little while, but in spite of all we could do, she died fourteen hours after the examination of the evening before.

That case brings forcibly to mind the dangers of placenta prævia and the complications that can arise in a given case. Ordinarily, Braxton Hicks' version, bringing down the foot and leaving the ease to Nature, is ideal treatment, and the one recommended for general practice. I believe, however, that had I done Cesarean section as soon as I had recognized the condition of placenta prævia centralis at the eighth month of pregnancy, when the cervix admitted a finger, I would have saved mother and baby.

As to the question of hemophilic tendencies in this case, I can not give a positive opinion whether it was an acute hemophilia or alteration of the blood produced by hemorrhage, I do not know. I had a talk with Dr. E. Wyllis Andrews about acute hemophilia in pregnancy and labor, and also in certain constitutional dyscrasias, like syphilis and malaria, in which no marked positiveness of opinion was developed.

Cesarean section for placenta prævia is not a generally recognized procedure. Ehrenfest, of St. Louis, collected the statistics two years ago and the percentage of recoveries was against the operation. I believe, however, it has a place, and in a given case of placenta prævia centralis the quickest and safest way for both mother and child is probably the abdominal operation.

Dr. Jesse P. Simpson, of Palmer:—I have listened with much pleasure and satisfaction to the reading of Dr. Hollenbeck's paper and to Dr. De Lee's intelligent and instructive discussion. I want to speak of the use of suprarenal extract in cases of placenta prævia. Some years ago, having gotten good results from it in postpartum hemorrhage, I felt encouraged to try it in placenta prævia. My first case occurred about five years ago. The woman lived four miles in the country and was almost exsanguinated before I reached her. Twenty minims of the extract given hypodermically acted promptly in raising the blood pressure and checking the hemorrhage, thus allowing considerable time for deliberate dilatation of the cervix and delivery by podalic version. The child was still born; but the mother made a good recovery, although suffering with an acute attack of la grippe at the time. Indeed, I have always believed that the paroxysms of coughing brought about the first detachment of the placenta and brought matters to a crisis at this particular time, since there had been no previous hemorrhage or other symptom to attract one's attention to the existing

condition. Although not in line with the subject under consideration, it may interest you to learn that following the frightful hemorrhage the high fever and expectoration that had existed about forty-eight hours, disappeared very abruptly.

My second case occurred the middle of last January, in our town. Was first called to the house because of a slight hemorrhage; and readily diagnosed the condition by deeply invaginating the index finger into the much elongated cervix, the long cervix in such cases having also been mentioned by Dr. De Lee. Having the patient near me, I concluded to put her to bed and await further developments for a time at least. One week later there occurred a much greater hemorrhage, and upon examination the elongated cervix was practically obliterated (although the lady stated that she had suffered no pains) thus indicating a considerable detachment of the placenta. This was at about the eighth month. I immediately proceeded to bring about labor, first giving 20 minims or more of the suprarenal extract by hypodermic injection, which, as in the previous case, acted admirably in checking hemorrhage. Having called Dr. James Simpson to assist, it was determined to watch closely the duration of the effect of the adnephrin, in order that we might have reliable data therefrom. And although we were with the case eleven hours and brought about uterine canalization in a most deliberate manner, having to detach nearly one-fourth of the placenta in accomplishing this; and finally delivering by podalic version, because we did not wish to jeopardise the life of the mother by placing too much reliance upon our hemostatic measures, hemorrhage did not again become noteworthy until five hours had elapsed, at which time another dose of the extract was injected and this sufficed until the third stage of labor was completed. As it was thought that chloroform anesthesia would antagonize the effect of suprarenal extract in some degree, morphin without atropin was used to blunt the sensibilities of the mother, and doubtless aided in controlling hemorrhage, though it must have retarded the effect of our efforts at inducing active expulsive pains.

In a like case nearing full term, I would now feel warranted in applying forceps or conducting any other maneuver toward safeguarding the interests of the child. However, an extensive separation of the placenta might kill through asphyxiation as certainly as from fetal hemorrhage. I also lost the infant in this case, but through a careful cleanly technic the mother made an uneventful recovery. And the total hemorrhage was certainly only slightly more than in the average normal labor.

Dr. Thomas J. Sullivan, of Chicago:—Before the discussion on this subject is closed, I will call attention to a phase of the question which the previous debaters did not have time to take up. This subject is a very large and important one, and we need not be alarmed if some of the members should run out when such a topic is under consideration, as, for instance, gunshot wounds of the hands received on the Fourth of July; yet we have 240 or 250 deaths attributable to the ignorance of the medical profession of the United States. If we understood the subject we would not have as many deaths. Doctors will run to a hospital to see a Cesarean section rather than discuss such an important subject as this. It is terrible, gentlemen, to lose a mother from placenta prævia when there are six or seven children in the house. It is a difficult subject to handle. I have run across in my professional experience a good many deaths from placenta prævia, but none have happened fortunately in my own practice. There is one class of cases that I will briefly refer to, namely, women who are far advanced in life and are pregnant for the first time. They have partial placenta prævia; there is hemorrhage, not great; you wait for the ease, and the woman has a severe hemorrhage, when it becomes necessary for you to proceed. I want to call attention to the vaginal section method in this connection. It is excellent. The patient can be put in a hospital or prepared at home for operation. If the cervix is still closed and the hemorrhage will warrant immediate delivery, there should be an incision made across the junction of the vagina with the uterus, and it is an easy matter with a sponge to shove up

the bladder and other structures and make a free incision through the posterior wall of the uterus and deliver either by the feet or head, whatever is most convenient, and the woman can be rapidly delivered in that way. Before delivery takes place there is hemorrhage from vessels; these should be seized, ligated, and all forceps removed. Early this year I delivered a woman of 37 in that way, with an easy recovery of the mother, although the child died before the procedure was undertaken, due to a prolonged and severe hemorrhage during the night. I delivered the woman very early in the morning, and she made an excellent recovery.

This method is taught and practiced in Europe with good results, and I call attention to it because it is simple, safe and useful only in that class of cases. It would not be useful in other cases, as, for instance, those in which the cervix could be dilated with the hand. It would not be justifiable. Instead of waiting in the other class, you can make section, deliver rapidly, control hemorrhage, and save the patient further loss of blood.

Dr. Joseph B. De Lee, of Chicago:—May I be permitted, Mr. Chairman, to reply to the remarks of the last speaker regarding the treatment of placenta prævia? It might have been better in this case, when I found the cervix was tight, and could not make extraction immediately, to have pulled down the cervix, make a transverse incision at the junction of the vagina and cervix, as described so glibly by Dr. Sullivan, push the bladder up, cut the uterus, and deliver. I tried this, but the tissues were as friable as wet paper; the vulsellum applied to the cervix to make traction pulled out and the hemorrhage, which started about the incision, was so profuse that it was impossible to see the bladder, vagina or uterus or anything that was under the knife. Vaginal section is contraindicated in placenta prævia, but in cases of eclampsia and rigid os, where immediate delivery is desired for other reasons, it is a justifiable operation.

Dr. S. A. Oren, of Lewistown:—After listening to the paper and discussion, the question arises, How much are we ahead of our fathers? Are we ahead of them at all? Why would it not have been a good idea in the case that was mentioned, as soon as hemorrhage had occurred and placenta prævia was diagnosed, to have thoroughly packed the vagina tightly, so that there would be no leakage, and let the case alone? The old belief was that hemorrhage would dissect, so to speak, the placenta loose, and in about twenty-four hours or less, after watching the case, remove the packing, and you would find the os dilated, and the placenta would then come away with a dead baby, and the mother would be saved. Would not that be a good method to adopt? That is what I rise to ask about and call attention to.

I remember having but one case, and that is the way it was treated. That was the way my father taught me to treat these cases, and if I had another case to treat I would adopt the same method. I think it is right. It is logical. Give Nature a chance. What is the use of all this discussion over Cesarean section, whether it shall be abdominal or vaginal? Why not go back and see if our fathers did not know something, and treat these cases in the way I have mentioned with better results and be a little more conservative with the knife?

Dr. Edward C. G. Franing, of Galesburg:—I have one case to report in connection with this paper and discussion. I was called to see a woman, primipara, 34 years of age, with a moderately contracted pelvis, and placenta prævie centralis. It was a full term pregnancy. There were no labor pains. There was a history of hemorrhage, probably a pint or a pint and a half. Of course, the question was what to do with the woman at the time. I decided by comparing the results in the methods of treatment, also taking into consideration the individuality of that particular case.

The maternal mortality percentage for placenta prævia, other than by abdominal section by the best methods and operators, are 10 to 12 per cent., and by abdominal section is less than 5 per cent; that of the child is 55 to 60 per

cent., and practically nothing respectively. Abdominal section showed the best results, so I performed Cesarean section and saved both mother and baby.

Abdominal section for placenta prævia is not more dangerous than from other causes unless the woman is too exsanguinated. I am sure it will take a more prominent part in the handling of these cases in the future than previously. I think it is reasonable that it should. The uterus is soft and boggy at the placental site and when implanted over the os, the alternate contractions and dilatations with or without lacerations act very favorable to bleeding. It is different from cutting through the placental site in Cesarean section, where there is a steady contraction to control bleeding. A woman with placenta prævia and a viable child with no, or very little, dilatation, deserves serious consideration for abdominal section.

Dr. Effie L. Lobdell, of Chicago:—I was called one morning to see a case with another physician. Patient noticing some bloody discharge without pain, and being at full term, called a local physician who, evidently diagnosing placenta prævia, had attempted to pack the vagina. On removing the packing I found a peculiar gray substance which I could not account for, but on removing more of the gauze, I found it to be brain substance. A large fossa proved to be the anterior fontanel, this which the physician had packed was the cranium of the child. Evidently the bloody discharge which alarmed the patient was from the dilating cervix which was complete, and had retracted on my examination. He mistook the fontanel for the undilated cervix and thought he was packing into the cervix and vagina. The mother had felt movements of the child until this procedure. I cite this case merely to show packing the vagina for placenta prævia is not always the conservative thing to do.

Dr. Dagan:—I have had a number of cases, but there is one in particular that I wish to report. I was called to see a primipara. When I first saw the woman I recognized by examination that she had a placenta prævia centralis, and was in the first stage of labor. She was having moderate pains. She was becoming exsanguinated, and I saw the case was rather urgent. I did what I could at the time after making the diagnosis. I packed the vagina tightly and sent for help, and made arrangements to deliver the woman. But staying with the patient and watching her, I noticed soon she began to show symptoms such as we see in postpartum hemorrhage (intrauterine). The patient began to complain in that peculiar way we can not well explain. She had moanings of pain, and once in a while would have mild uterine contractions, in the meantime becoming shorter, and although hemorrhage was external at the time and we had control over it, the internal hemorrhage was going on all the time. By the time we got ready to deliver the woman the os was already dilated to admit one finger; I enlarged this and by Braxton Hicks' version delivered the child. She died from hemorrhage the next day and of shock from hemorrhage. It has seemed to me since then that in these cases of primiparæ, with rigid os, where we can not do rapid work, Cesarean section is the proper mode of procedure, and it has always appeared to me that we could save some of these patients where, by manipulation and waste of time we would lose them.

Dr. Thompson:—Of two cases of placenta prævia I have seen, in both packing was resorted to, and the mothers and babies saved in both cases. I had counsel in each case; we adopted a deliberate procedure and were successful. Obstetricians must be deliberate.

Dr. John E. Walton, of Medora:—After this long discussion I want to call attention to the fact that there are some country doctors and a few city doctors sufficiently interested in this subject to remain here until after 12:30 M., which is a great compliment. This is a very important subject, and if you have followed the discussion carefully you have found that there is a point of differentiation in each case cited. Every one of these cases has had something in particular that attracted the operator's attention. This shows us the great difficulty in mastering placenta prævia. There are one or two points I desire to call attention to, and one is the extreme difficulty of performing Braxton Hicks' version with

a dead child. If you do not believe it, try it a few times, as there is so much difference between a live and dead child. I want to mention one or two things in connection with a case of marginal placenta prævia I saw in consultation in which there was bleeding for ten days or two weeks. That obstetrician was deliberate. When I saw the patient she was on a cot with the bed saturated, with a clot of blood as big as a dinner-plate on the floor. She was pulseless. She was delivered with great difficulty with forceps, and given a quart of salt solution under each breast. That woman is alive to-day. I believe in deliberation. Let us temper our deliberation with judgment. Of course, we all know that in obstetrics there are times when we must act quickly. Above all things, do your patient no harm.

Dr. E. M. Sala, of Rock Island:—It appears to me, if we are to attempt to clamp the uterine arteries by way of the vagina in these cases of placenta prævia, it would help a great deal, and then take time to deliver the child. I do not know that it would be necessary to make an incision, but if we keep close to the uterus and apply clamps close to it, it would help matters, and it ought to be tried.

Dr. F. C. Robb, of Farmington:—I have listened with interest to this paper and discussion and have noted the great interest manifested in it by those who have spoken on the subject, and I think our rising obstetricians are progressive. If our fathers had anything so good, we will take it with us.

There is one case that I would like to report, not that it will throw much light on the subject, but more from the standpoint of euriosity, as it was a curiosity to me. I was called with my partner (Dr. Plumer) to see a woman, mother of three children, this being her fourth confinement, and we found we had to deal with a profuse hemorrhage, and the woman was in a rather critical and dangerous condition. We gave it as our opinion she would die. The placenta was virtually delivered and between the thighs. There were some segments of the membrane yet in the vagina. The presentation was a first occipital. At the time the hemorrhage was under control. We put on short forceps and delivered, and the patient gave promise of making a recovery, but the septic condition which was present developed to such an extent that the patient died in a short time. No further loss of blood.

Dr. J. F. Harter, of Stronghurst: On this subject I have a case to report which was very interesting to me and very novel.

A number of years ago I was called to see a woman in labor. She was supposed to be at term. On examination I found a marginal placenta prævia, but the hemorrhage was not excessive; the uterus was easily dilated, but the placenta was so fragile that it broke loose easily. I delivered it, and then immediately following the child was expelled, it being about a six months development, partially decomposed, after which I delivered a child at full-term, still-born, which weighed about nine pounds. The woman made an uneventful recovery.

Dr. Hollenbeck (closing the discussion): One of the functions of a paper read before a medical society is to bring out discussion, and from that standpoint I wish to thank the gentlemen for their free discussion. It has been illuminating to me.

I am glad Dr. De Lee answered the suggestion made of performing vaginal Cesarean section in this connection. He can answer it with more authority than I can.

I wish to add a word or two in explanation of the increased bleeding. As is well known from the pathology of this condition, the lower uterine segment is extremely vascular, and we can not handle it with impunity. Any violent manipulation is very likely to cause a tear. As suggested, it tears like wet blotting paper. This leads to still further hemorrhage, and one of the indications is to stop the hemorrhage and not to increase it. The suggestion as to the use of adrenalin I had never thought of in this connection. I have used it for hemostasis in other conditions, and I can not say positively I got results, but it seems I did sometimes.

I am sorry I do not know the names of all the gentlemen who have taken part in the discussion; if I did, I would be tempted to answer their suggestions or remarks scrietm.

One of the speakers suggested following the old idea of packing the vagina. That was mentioned in the paper. In that class of cases where the primary hemorrhage occurs before dilatation is sufficient, it is safe to pack the vagina and wait for dilatation to occur, provided hemorrhage does not continue. If it does continue, the indications for operation are immediate. Another thing: My idea was that this was a procedure for the general practitioner applicable to the vast majority of cases. Of course there is no condition that arises that requires operative interference in which you can lay down routine treatment, and all of the suggestions that have been offered are valuable.

EXTRAUTERINE PREGNANCY AND RETROUTERINE HEMATOCELE.*

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CHICAGO.

In presenting the subject of extrauterine pregnancy and hematocele as I propose doing I can not promise you anything new, but rather hope to emphasize certain of the interdependent points and by doing this in a systematic manner to render the subject in a somewhat clearer light.

Nélaton in 1851 described retrouterine hematocele. Gallard pointed out ectopic gestation as a cause and also considered hematocele as occurring in some cases of simple ovulation. The behavior and frequency of ectopic gestation as the principal cause was only demonstrated by Veit in 1884. It is conceded that hemorrhage into the cul-de-sac of Douglas in women may have its origin in either (a) an extrauterine (usually tubal) pregnancy, or (b) from certain systemic or local conditions, e. g., typhus, cholera, scorbutus, purpura, hemophilia, arteriosclerosis, pampiniform or other varices, acute phosphorus poisoning and fatty degeneration of the ovary; conditions that, with pelvic vasodilatation, ovulation, or sexual excitement, or physical causes of increased blood pressure, e. g., straining at stool, lifting weights, etc., may lead to rupture and hemorrhage into the cul-de-sac of Douglas. The latter form so comparatively small a proportion of the cases that the term hematocele is to-day generally considered to imply a ruptured ectopic gestation; therefore, I am going to take the liberty of considering the subject entirely from that etiologic standpoint.

Recurrence of extrauterine pregnancy in the remaining tube is not uncommon, and, indeed, in the same tube if it is not removed, as seen by Gratsehoff, Stahl, Gates and others. If the tube be left intact at the operation pregnancy may even recur at the same site. Twins in extrauterine pregnancy have been frequently reported. Bilateral tubal

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pregnancy was seen by Pean in combination with cystoma ovarii. Extra- and intrauterine pregnancy occurring together at the same time have also been reported many times. The particulars of a very interesting case have been kindly furnished me by Theodore Ticken of an extrauterine tubal pregnancy ruptured apparently at about two and one-half months, and a concomitant unsuspected intrauterine pregnancy of about six weeks' duration, removed during the curettage previous to the laparotomy, seen by him in October, 1907.

If Scanzoni, who died in 1891, just as the laparotomy was losing its terrors under the improved technic, saw hematocele but once in twenty years, and Oleshausen and others now estimate them to form about 4 or 5 per cent. of all gynecologic diseases, one should not be surprised at this apparent difference when we consider the greater frequency of laparotomies to-day compared to the pre-antiseptic days during which the clinical proof of these cases was almost nil. Formerly these cases were seldom operated till unrecognizably far advanced in the inflammatory stage or perhaps had perforated externally spontaneously. Also the absence of microscopic examinations in the cases of fatal hematocele in which a macroscopic diagnosis was impossible at the autopsy, not to mention those on whom no autopsy was held, and those who recovered under medical treatment, naturally made the estimation of frequency of extrauterine pregnancy as a cause extremely unreliable.

AGE.

The age at which extrauterine pregnancy occurs most frequently is at the height of the reproductive life. Statistics show that women who have borne children and then though married fail to become pregnant again for many years, seem especially prone to extrauterine pregnancy. The Tubingen clinic series of seventy-one cases shows one-seventh were nulliparæ, one-seventh primiparæ and five-sevenths multiparæ, many of whom had not been pregnant for years. In one of my cases a multipara, operated recently in the Presbyterian Hospital, the patient, though married and in good health, had not been pregnant for fifteen years. The ages at which extrauterine pregnancy is most common range from 20 to 40 years, as a rule, but there is always a theoretical possibility of extrauterine pregnancy occurring at any time from puberty to the climacteric, or better, from the first ovulation, which may occur before menstruation is instituted, to the last ovulation, which may be after it has ceased. J. A. Clark reports one case in a very young unmarried girl and two cases in widows close to the climacteric.

THE PREDISPOSING CAUSES OF EXTRAUTERINE PREGNANCY

Admit of much theorizing. The three types of ascending clinical infection of the tubes to bear in mind would seem to be:

(a) *Catarrhal Conditions* of the genitalia (Noeggerath's theory).

(b) *Gonorrhœa*, acute or subacute (Neisser's infection), on an intact mucosa. Weisswange (*Centralblatt*) thinks this a very frequent predisposing cause. Three theories in this infection deserve our consideration, viz: In the first stage of gonorrhœa, while the fimbriated end of the tube

is still open, tubal pregnancy is said to be very liable. The ascending infection has perhaps not yet, or only slightly, implicated the fimbriated pavilion, while the uterine end may be already markedly involved. During healing after gonorrhœa the tubal mucosa is said to invite implantation of the impregnated ovum on its surface before or during the restitutio ad integrum of the ciliated epithelium. Also we should not forget the proneness to perisalpingitis and distortion, knicking and displacement of the tubes in gonorrhœa due to adhesions in cases where the lumen is still patent, though perhaps narrowed.

(c) *Puerperal* (pus or gonorrhœal or mixed) ascending infections following either abortion or term labor. Robb reports a previous pelvic inflammation in only one-seventh of his cases, though one-half of them had had abortions, according to the anamneses. All operators are fully aware of the frequency of marked macroscopic lesions encountered in the ovaries, tubes and peritoneum from previous pelvic inflammations of which the patient gave no information in the most carefully written history. The results of any ascending infection depend on its severity and are: An endosalpingitis, if only the endosalpingium be involved. If the process is more severe the musculature or the salpingium is involved, (salpingitis) or extension may occur to the peritoneum (perisalpingitis, or perimetritis) with the formation of adhesions or bands knicking the tubes. This latter extension may be either by contiguity, by passing directly through the tube wall or by continuity via the fimbriated ostium to the peritoneal cavity.

(d) *The descending* infections, e. g., infections of the female genitalia secondary to a peritonitis, if much less common, still deserve passing mention, for one not infrequently encounters right-sided salpingitis concomitant with appendicitis where the infection apparently was primarily in the appendix and secondarily in the tube, though the reverse is by far the most frequent. In the descending inflammations the involvement would theoretically be primarily of the perimetrium and later the infection might enter the tube, assisted by the so-called Mengés wave. Old peritonitic (perimetritic) changes are so frequently found when operating ectopic cases that many authors speak of perimetritis as the sole cause.

Pathologic changes, if they predispose to extrauterine pregnancy, apparently must be graded to a nicety, i. e., the ovary must be still capable of ovulation. The passage of spermatozoa upward through the tube must be still possible or have passed upward more rapidly than the inflammatory process. The once prevalent idea that extrauterine pregnancy was common in women who marry late in life (elderly spinsters near the climacteric) is erroneous. Old maids usually marry old bachelors or widowers who have had time to contract some infection of the genital organs. Five-sevenths of the cases in the series quoted were multiparæ, apparently throwing by far the greatest responsibility for infection, if that be the cause, on the midwife or obstetrician. As infections are more common during abortion than term labor, one should not

fail to inquire carefully for information of the former, also it is not uncommon for multiparæ to be the victims of intercurrent gonorrhæal infection, as is evidenced by the number of cases of ophthalmia neonatorum in the children of multiparæ.

WHAT IS THE ACTUAL REASON FOR THE OCCURRENCE OF ECTOPIC GESTATION?

(a) Is it due to a narrowing of the lumen of the tube throughout its whole length, or locally, so that the migrating impregnated ovum can not pass, caused by something like a uterine fibroid or, as in the case of interstitial pregnancy so often quoted of Beck and Wyder, due supposedly to an obstructing polyp at the uterine end? Or does the dipping downward of the tubal epithelium from inflammatory hyperplasia form a depression in which an impregnated ovum may lodge?

(b) Is it simply a slowness of migration, consequent on a lessened motion of the injured ciliated tubal epithelium, or a lessened peristalsis of the tubal musculature due to inflammatory infiltration or induration allowing the impregnated ovum to be still within the tube when the theoretical nidation or nesting qualities of the ovum have developed? This theory that the trophoblastic layer of the ovum at a certain specified time after fecundation develops a cell dissolutio quality at the point of contact between the embryo and the tubal mucosa and dissolves the epithelium of the tube, as it would that of the uterus had it reached that organ, seems tenable. The impregnated ovum being still within the tube when the nesting qualities are developed, now sinks into the subepithelial layer of the tubal mucosa and wanders no further.

(c) Is it due to the action of the inflammatory process causing changes in the tubal mucosa itself which invite nesting? That extra-uterine pregnancy is not always due to changed conditions of the tubal mucosa would seem to be proven in the cases of so-called external migration, in which the longer time alone seems to be sufficient reason why the ectopic gestation occurred as well as in those cases of long serpentine tubes of the infantile type in which no inflammatory changes can be found either endosalpingitic, salpingitic or perisalpingitis. Bland Sutton even goes so far as to assert that a healthy tube is more liable to become gravid than an inflamed one.

(d) Lastly, the theory mentioned by J. Clarence Webster of certain embryonal qualities or deposits in the tubes of an epithelium like that of the corpus uteri, would seem to have some place; possibly alone, possibly in conjunction with certain slight inflammatory changes. That the tubes, being equally derived from Mueller's cords and later becoming tubes, as does the uterus, of which latter they are nothing but prolongations of the cornuæ, might show uterine qualities under certain conditions, is not surprising; and yet again this tendency to usurping uterine functions is peculiarly incompetent when we remember the little power of true decidua reaction possessed by the tubal mucosa, though peculiar decidua-like changes are occasionally met with even in the non-pregnant tube. Diverticulæ and accessory tubes, though stated not to be predis-

posing to, yet have been the place of lodgment of the impregnated ovum without other apparent cause (Henrotin, Herzog and others).

TYPES OF EXTRAUTERINE PREGNANCY.

These may be broadly classed as abdominal, ovarian or tubal. The purely abdominal pregnancy, that is, a primarily abdominal pregnancy, in which the impregnated ovum becomes lodged upon the peritoneum alone, probably does not occur, but the primary lodging place of the impregnated ovum is almost always on Muellerian tissues, i. e., either tube or uterus. Those cases that were formerly thought to be purely abdominal perhaps occurred primarily on the mucosa of a tubal fimbria, and consequently belong to the tubal variety.

Ovarian pregnancy is so comparatively rare that it hardly comes within the scope of this paper, though it has occurred to the essayist whether it might not be possible that the primary lodging place of some of these might not have been in the fimbria tubo-ovarica in close proximity to the ovary, which would again rehabilitate the Muellerian theory.

Tubal pregnancy is so much the more frequent that in discussing the subject of extrauterine pregnancy and hemocele one usually intends the tubal type only to be understood. Strassmann points out that probably every normal uterine pregnancy is primarily a tubal pregnancy, i. e., the pregnancy begins probably in the ampulla of the tube, and under normal conditions the impregnated ovum reaches the uterus before conception or nidation takes place. Tubal pregnancy occurs but seldom in the portion of the tube lying on the uterine side of the round ligament attachment to the cornua uteri, i. e., in that portion of the tube which passes through the uterine wall (*graviditas interstitialis*). Martin saw it once in 70 cases; Winckel once in 120 cases of tubal pregnancy.

If we recall the fact that most of the causative inflammations are ascending and implicate this portion of the tube first, we can readily appreciate in virulent inflammations why interstitial pregnancies do not occur, but one can not understand it in the milder inflammations; also one would expect the nidations or nesting qualities in the impregnated ovum would be more frequently developed in the ovum by the time it reached that part of the tube which passes through the uterine wall than while it was yet in the portion nearer the fimbriated extremity.

Tubal pregnancy is most frequently external to the round ligament attachment, either in the isthmus (*graviditas isthmica*) or nearer to the fimbriated extremity, in the ampulla (*graviditas ampullaris*), or immediately at the fimbriated extremity (*graviditas infundibularis*), or on the fimbria tubo-ovarica (*graviditas fimbria tubo-ovarica*) (Leopold). The *graviditas ampullaris*, and especially the *infundibularis*, the latter being immediately at the fimbriated end of the tube, may as it grows protrude in part into the abdominal cavity and become adherent to adjacent structures; still it is a tubal pregnancy, as the nomenclature demands that the site of the primary conception be used. The same also applies when the primary conception place is on the fimbria-tubo-ovarica. In sections of mine dendritic processes exactly like those of the tube itself are often

well developed at the ovarian attachment of this ligament so that this form of pregnancy may grow into the ovary and be mistaken for ovarian pregnancy.

Just where to draw the line in nomenclature between the tubal, the tubo-abdominal and tubo-ovarian and ovario-abdominal, that is, between the purely tubal and ovarian and the mixed forms, is a difficult matter and probably better left to the individual writer. Pre-existing adhesions between these structures before pregnancy would not technically overcome the difficulty. The impregnated ovum sometimes apparently sinks so deeply into the musculature that a microscopic section often shows as does the one now under the microscope.

1. Mucosa.
2. Muscular layer of tube.
3. Trophoblastic layer of embryonal cells.
4. Embryo and chorionic villi.
5. Peripheral trophoblastic layer.
6. Musculature of tube.
7. Peritoneum.

This apparent patency of the tube I believe to be due rather to the dissecting process of the embryo between layers of musculature than direct sinking of the embryo deep into the tube wall. The true decidual reaction of the tube is very slight, the cells often mistaken for decidual cells being trophoblasts of fetal origin. In the section from which this was taken the cells simulate very closely those of chorio-epithelioma malignum. A slight decidual reaction at the basal pole of the embryo was conceded to be present in only about two out of twenty cases, and this was derived from the mucosa connective tissue (Langes). Decidual cells are always derived from mucosa connective tissue and never from intermuscular connective tissue cells undergoing metaplasia, neither in the tube nor in the uterus (Winckel).

THE SYMPTOMS AND DIAGNOSIS OF EXTRAUTERINE PREGNANCY.

These should be considered carefully entirely apart from those of hematocele, which I will discuss later. In pregnancy it is the woman who is pregnant, as is evidenced by the physiologic change that occurs in every organ, extragenital as well as genital, supra- as well as infra-diaphragmatic or pelvic; also in the blood itself. These changes are the same whether the pregnancy be intra- or extrauterine. The uterus is only the normal conception, abiding, nourishing and developing place of the embryo for the first forty weeks after fecundation, and clinical experience teaches that the Fallopian tube tries to usurp this function. Even in extrauterine pregnancy the uterus produces a false decidua and undergoes muscular changes, as in normal intrauterine pregnancy, though empty so far as the product of conception is concerned.

(a) The symptoms and signs (presumptive and probable) of extrauterine pregnancy then are the same as normal intrauterine pregnancy, so that I shall not recapitulate them here. This being the case, it should be the rule of the obstetric practitioner in his care of every early preg-

nancy, first, to diagnose whether it is an intrauterine or an extrauterine pregnancy, just as much as it is to ascertain whether a retroversion or a pelvic contraction be present in an intrauterine pregnancy. There are, however, certain subjective and objective symptoms of more or less value. Winckel points out that in extrauterine pregnancy the nervous manifestations are liable to be exaggerated. (b) Vomiting is sometimes more troublesome, may even be uncontrollable. (c) Peritonitic colic pains occur, due to an old circumscribed peritonitis and dragging of adhesions. (d) Diarrhea, occasionally of a dysenteric type, or with (e) rectal and vesical tenesmus may occur if adhesions implicate the rectum or bladder. This was seen by Freund, but the typical ischuria of the incarcerated retroflexed gravid uterus never occurs, according to Winckel.

Other points of doubtful differentiations value, such as that the rapid-growing ectopic fetus plus the increase in size of the empty uterus, soon fill the true pelvis and cause the rising of the uterus above the symphysis to be somewhat earlier than in intrauterine pregnancy.

VAGINAL EXAMINATION.

This should always be performed with the patient in the dorsal buttocks position on a proper table, if possible, with the head well flexed on the sternum, or across, but never in the long axis of the bed, so necessary is it to be able to lower the elbow to the utmost to examine the pelvic organs intelligently. (a) Lividity of the vagina (Jacqueminé-Chadwick sign) increasing toward the portio vaginalis may be more marked. (b) The arteries are said to pulsate more distinctly to palpation in the vault of the vagina, an observation purely due to the fact that the vaults are usually more carefully palpated than in normal intrauterine pregnancy. (c) Anterolateral displacement of the enlarged and softened uterus in pregnancy is very suspicious. Extra care should be taken to palpate for any possible laterally situated enlargement as a cause of this displacement. A soft, growing ectopic sac by the side of the uterus may be very difficult to palpate in the early weeks of an unruptured extrauterine pregnancy, while the harder tubal mole, though not nearly as large, may be very easily felt.

Winckel's statement that "A spindle or oval tumor situated laterally by the side of the uterus is presumptive of tubal pregnancy," "A myoma-like enlargement at the insertion of the tube is suspicious of interstitial pregnancy," and that "Ovarian pregnancy is situated higher than either of the preceding," is too fine a differentiation. To diagnose extrauterine pregnancy in the early weeks is often very difficult, to say nothing of its exact site. (d) A volsella on the cervix may aid in outlining the ectopic sac by the side of the artificially prolapsed uterus. (e) The sound finding the uterus empty and the walls thick, is a questionable statement. Folds of the mucosa may hinder the introduction of the sound and render measurement inaccurate and lead to error of opinion (Winckel). As the whole uterine cavity in intrauterine pregnancy is not completely filled till the fourth month, one may easily be deceived by the sound as to its length in early pregnancy. The uterus may appear empty for its

entire length to the sound at the end of the second month in a laterally situated intrauterine pregnancy. The sound may cause uterine contractions if the false decidua is still in utero (Winckel), and render liable rupture of the extrauterine pregnancy (Freund and Bandl). (f) The curette will, if the false decidua be not yet expelled, give the fact of the presence of decidual cells in the uterus. Decidual cells are a sign of pregnancy, and the absence of chorionic villi point to it being extrauterine. A woman suspected of extrauterine pregnancy should always be placed in the hospital pending a decision of diagnosis. Such means as the introduction of the sound, and especially the curette, should not be done unless every preparation has been previously made for immediate laparotomy should symptoms occur making it imperative, and only then in cases where the indications are to make a diagnosis at all hazards.

FALSE ABORTION.

The false abortion, or emptying of the empty uterus, is characterized by:

1. Abortion-like pains.
2. The expulsion of the false decidua due to uterine contractions, accompanied by hemorrhage from the uterus, occurs within the first four months of extrauterine pregnancy whether the fetus survives or not (Winckel). Its constancy in all cases is not proven (Opitz, Schmidt), at least in the cases of very early rupture. The false, or uterine decidua of an extrauterine pregnancy when found is often thicker than the decidua of an intrauterine pregnancy and microscopically is composed of a stratum compactum and a stratum granulosum as in intrauterine pregnancy. It forms a cast of the intrauterine surface, shaggy on its uterine surface and smooth on its free surface. It may be expelled in pieces or whole. The entire decidua is sometimes intact, so that when spread out the openings at the tubal angles and internal os are easily recognized. Dysmenorrhea membranacea, or exfoliativa, in which a decidua-like structure is cast out at the period, with pains often of an abortion-like character, also must be borne in mind, and doubtless in some of these cases it is perhaps in reality the decidua of a very early true abortion or indeed the false decidua of an extrauterine pregnancy in which the shock is but slight.

3. The metrorrhagia, plus the abortion-like pains of the false abortion, in a woman with one or two months' amenorrhea, is probably very often mistaken for a true abortion, the false decidua being mistaken by the laity or midwife for the product of conception. The increased frequency of the pulse, anemia and shock due to the rupture of the ectopic sac, and concealed hemorrhage, if not marked, may easily be attributed to the pains and visible uterine hemorrhage, which may be profuse, and the ruptured ectopic gestation remain unsuspected. The causes of the profuse metrorrhagia in false abortion have been variously stated as due to the congestion of the uterus, the anterior position of the uterus, and blood from the tube lumen flowing through the tubal ostium into the

uterus and thence from the uterus, giving the impression that it is uterine in origin.

4. A continued metrorrhagia, often of a dark appearance, lasting for weeks after an apparently true abortion, should make us suspicious of extrauterine pregnancy. It is no uncommon thing for such cases to have been repeatedly curetted to remove supposedly retained secundines, as a cause of the continued bleeding.

In a case recently operated by the writer in his service at the Cook County Hospital, the woman positively denied pregnancy and abortion, though her periods had been irregular since the birth of her (one) child five years ago. A menorrhagia had gradually merged into a metrorrhagia lasting till the operation, a period of five weeks. A careful bimanual examination revealed a rather soft, painless lateral enlargement on the right side; pulsation of the vessels was not particularly marked; the uterus was retroflexed. The only symptom complained of, besides hemorrhage, was a peculiar faintness on attempting to rise from her bed. The diagnosis of hematocoele peri-tubaire was confirmed at the operation. The microscope revealed the chorionic villi in the tube wall.

In every case of abortion the differentiation should be carefully made as to whether it is a true abortion from an intrauterine pregnancy, or whether a false abortion of an extrauterine pregnancy. Diligent search in the clots by the physician for the product of conception should never be omitted. Finding the product of conception is naturally diagnostic of intrauterine, while large thick pieces of decidua (if one is fortunate enough to find them) are very suggestive of extrauterine, especially in the absence of the embryo itself. Lastly, finding the product of conception that has been expelled from the uterus, while proof of a true abortion, by no means excludes the co-existence of an extrauterine pregnancy, and possible rupture and death from intraperitoneal hemorrhage or peritonitis, or the discovery later of a perimetritic circumscribed collection of pus, the true origin of which is obscure.

In Tiekens's case he was called to a patient the history of which was clearly that of a ruptured extrauterine pregnancy, the intrauterine pregnancy being entirely unsuspected and only diagnosed during curettage of the supposedly empty uterus to remove the false decidua. One can very readily understand that had the intrauterine product of conception been expelled first, with profuse hemorrhage, the rupture of the extrauterine pregnancy might very easily have been overlooked and not diagnosed till much later, if at all, by all the symptoms being attributed to the true abortion.

In contradistinction to this last case is one kindly furnished me by Dr. Rudolph Holmes of a young woman recently admitted in a dying condition to the Passavant Hospital, Chicago, with a history of an attempted criminal abortion by the criminal introduction by a midwife of a sound into the uterus. The autopsy revealed a ruptured extrauterine tubal pregnancy. The uterus, though enlarged, was empty.

RETROUTERINE HEMATOCELE (NÉLATON).

This needs no comment on its nomenclature when we remember the natural curling backward of the tubes toward the ovaries lying on the posterior surface of the broad ligament so that hemorrhage from the tubes is usually directly into the cul-de-sac of Douglas.

The importance of uniting the subjects as I have done can nowhere be better shown than by the Tübingen statistics, in which sixty-eight



Hematocele Retrouterina (first degree), walled in above by preformed adhesions limiting the hemorrhage and ante-positing the uterus.

out of seventy-one cases ruptured between the first and third months. Two only went to the sixth month, and one to the tenth month of tubal pregnancy. The early rupture of the extrauterine pregnancy being the rule, makes the need of the careful study of hematocoele, for it is as hematocoele that we usually encounter it clinically.

The causes of early rupture of tubal pregnancy lie:

(a) In the anatomical formation of the tubal mucosa, not being so well adapted to decidual reaction as the endometrium. There being less

connective tissue depth in the mucosa, the chorionic villi soon come in contact with and penetrate the tubal musculature, which becomes pressure atrophied and thinner, in some cases even to the serosa. This penetration and thinning of the musculature of the tube is said to be especially early if the ovum lodges at the base of the dendritic process, i. e., intercolumnar in contradistinction to the columnar, in which the ovum finds lodgment on the summit of a dendritic process. Neither does the hypertrophy of the tubal musculature keep pace with the growth of the enlarging ovum, as does the uterus. Werth's statement that the product of conception not only imbeds itself in the tube, but digs its grave also in the tubal wall, is not without truth; indeed, it often digs a hole through it. Other predisposing factors might also be mentioned, such as the coagulations, or fibrinoid degeneration of the tubal musculature, passive distension and contractions of the tubal musculature (Winckel). In one case of the writer's the microscope shows a condition of tropho-blastic proliferation which gives the tube wall the appearance of being eaten through by trophoblasts. Lastly the increased blood pressure in the intervillous spaces and large maternal vessels, the walls of which have often suffered pressure atrophy and even penetration like the tubal wall, also raises the pressure within the weakened tube and invites rupture. Some authorities mention increased intra-abdominal pressure also, but in this the real factor is the increase in blood pressure.

Rupture of the tube is divided into (a) internal rupture, and (b) external rupture. The internal rupture of the capsule, or tubal abortus, admits of three subdivisions:

1. Internal capsule rupture without hematocele, 33 per cent. (Doederlein). It is quite conceivable that the tubal wall may be more resistant than the internal capsule which ruptures, and intramural hemorrhage occurs, also perhaps into the tube lumen, coagulates and forms hematomata, i. e., *tubal mole without hematocele*. This probably accounts for many of the hematosalpinges that were formerly considered of inflammatory origin. In inflammations the hematosalpinx is usually closed at the fimbriated extremity by adhesions, but in ectopic gestation it is often open, but may have become closed after tubal conception took place, a macroscopic distinction of doubtful reliability. It is always best to make the microscopic examination to prove the diagnosis.

2. As the pressure of the hemorrhage within the tube is usually too great to remain entirely within the tube, the lumen of which may still be patent in early pregnancy, it may possibly flow toward the uterus and add to the metrorrhagia; more frequently it flows in the direction of the least resistance, toward and out of the fimbriated extremity, and may collect there as a large fist-sized clot (*hematocele peri-tubaire*).

3. More frequently the hemorrhage is so profuse that it flows down and into and fills the Douglas sac (*retrouterine hematocele*). This occurred in about 63 per cent. of Doederlein's cases. The product of conception may also be expelled in part or wholly; incomplete or complete (*tubal abortion with hematocele*).

4. In rare cases where Douglas' sac has been previously obliterated by adhesions the blood may collect anterior to the uterus, in the vesico-uterine cul-de-sac, giving rise to the term (*hematocele ante-uterina*).

The external rupture of the capsule:

1. Intra-abdominal external rupture. i. e., rupture entirely through all the coats of the tubal wall and subserous hematoma occur, or through the peritoneum, also with hemorrhage into Douglas' cul-de-sac. This is especially fatal, because of the often very copious hemorrhage even from a



Hematocele (third degree): there were no preformed limiting adhesions. Adhesions only formed after the first hemorrhage had ceased.

very small rupture opening. Fortunately, external rupture occurs in only about 3.7 per cent. of cases (Doederlein). The product of conception as in the foregoing may be expelled from the fimbriated extremity or through the rupture opening.

2. Rupture intraligamentous. When we think of the two layers composing the *ala-vesperilionis* of the broad ligament we can readily understand that rupture of a tubal pregnancy might occur through the inferior surface of the tube and hemorrhage occur. The resisting power of the

enlarging pregnant tube is probably less on its inferior surface; especially if the ovum lodges here. This, coupled with the increased looseness of the parametric tissues in pregnancy, allows of a very easy separation of the leaves of the broad ligament whether the tubal enlargement be spindle, oval, spherical, and especially if sacculation occurs downward. Loschge as early as 1818 reported pregnancy between the leaves of the broad ligament, and Lawson Tait, probably meeting a number of such cases, made the much-derided statement that all extrauterine pregnancies of the fourth month were intraligamentous. If rare, intraligamentous rupture may also occur in very early cases, as pointed out by Kuhn in his description of intraligamentous hematoma. An interesting case of this is of local interest to mention here, was recently published by Allabin of Rockford, microscopic proof of its ectopic gestation origin by Maximilian Herzog.

We must always bear in mind that the corroding action on the tube wall and the mother's vessels by the chorionic villi may still continue after the first hemorrhage, so that repeated vessel rupture and hemorrhage can occur, causing what is entirely intratubal hematoma to-day to be peritubal to-morrow, or possibly what was only internal rupture to-day to be also external rupture to-morrow. Lastly the combination of retrouterine hemocele and intraligamentous hematoma must also be thought of.

Retrouterine hemocele differ according to area: (1) Where there is a previous walling off or roofing by old perimetric, omental and intestinal adhesions forming a roof over Douglas' cul-de-sac; the hemorrhage in this case occurs into a pre-formed circumscribed space pressing the uterus forward and forms a tense but limited hemocele (Schroeder). (2) Where Douglas' sac is not previously roofed in above by adhesions (Winckel).

Despite so celebrated an authority as Schroeder for the pre-existence of adhesions being the rule, one is inclined to ask whether strong adhesions would not hinder the upward displacement of the small intestines and hinder the forward displacement of the uterus by the hemorrhage into the cul-de-sac of Douglas.

Winckel thinks that pre-formed adhesions are not the rule, and certainly retrouterine hemorrhage from a small vessel, whether the rupture be internal or external, especially if the rupture also is small in area, might be easily understood to be slow and invite early adhesions-circumscription due to the irritant character of the mixed hemocele blood, plus the lowered blood pressure. The new elastic adhesions would easily allow of marked ante-position of the uterus taking place if an accession of the hemorrhage should now occur, due either to an elevation of blood pressure after recovery from the primary shock or enlargement of the rupture.

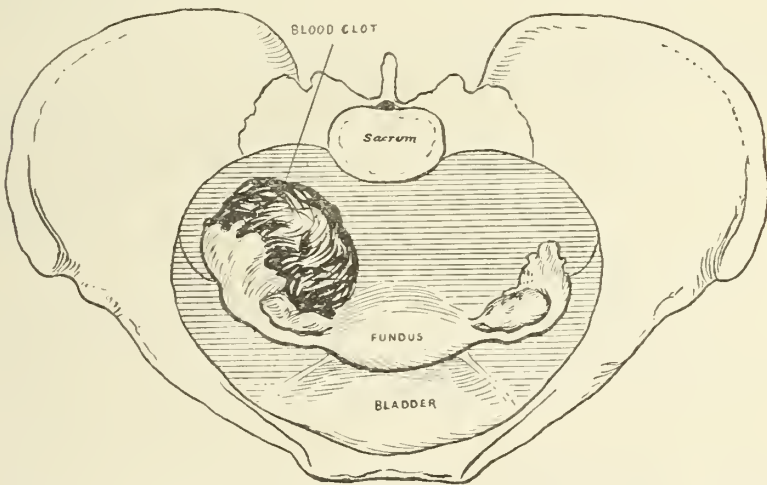
Again, if the primary hemorrhage be from one or more large vessels, such a hemorrhage may easily be enough to fill the whole pelvis, true and false, and even the greater part of the abdominal cavity and even death occur before any adhesions form. The great omentum has in the author's

opinion been the salvation of the patient in many of the cases which have come under his observation, its rapid increase in weight (infiltration) and proneness to adhesions making a complete roof with the intestines below it bridging between parietal peritoneum posteriorly, laterally and anteriorly.

By the foregoing reasoning from observation, the author of this paper wishes to point out the danger of placing faith in the presumption that pre-formed subdivisions are a reliable safeguard. By this I mean the three accepted places of limitation of the hemorrhage, viz.:

(a) Where the hemorrhage does not rise above the fundus uteri (except when the uterus is prolapsed), there being a bridge of adhesions between posterior parietal (Douglas sac) peritoneum and the fundus uteri (first degree), or

(b) Between the posterior parietal (Douglas sac) peritoneum and the bladder (second degree), or



Tubal Mole with Hematoma Peritubaire as viewed from above after abdomen is open.

(e) Between some point in the posterior parietal peritoneum and the anterior abdominal wall parietal peritoneum (third degree).

These arbitrary subdivisions in the past have given a false feeling of security to the practitioner; have justified him in stimulating patients when in a condition of exsanguination and shock and invited delay of the proper operative measures, and has permitted such bare questions as how much intraperitoneal hemorrhage is sufficient to cause death. The truth is, in hemocele we have blood mixed with other material, viz., cells of the chorion, trophoblasts, and tubal epithelium, tissue and detritus, which mixture early interferes with resorption and causes peritoneal irritation. Every operator frequently experiences two thoughts on opening the abdomen. One is that he expected to see more blood to account for the symptoms; the other, the changed appearance of the peri-

toneum, presumably due to the blood stain, but in reality what is present in every case of hematocele of more than a few hours duration, viz., peritonitis.

SYMPTOMS AND DIAGNOSIS OF HEMATOCELE.

The anamnesis is very important.

(a) Pregnancy may or may not have been known or suspected.

(b) Amenorrhea was present in 50 per cent. of Robb's cases and was the rule in Hain and Lederer's. Amenorrhea for one or two periods can occur in a woman previously irregular without exciting suspicion of pregnancy, especially in a married woman who has not become pregnant for many years and who had long been considered sterile. Menstruation may have occurred regularly, e. g., pregnancy may have occurred during or immediately after a period and the woman, by the time the next period is due, be a month pregnant and a few days over excite no suspicion. Women frequently menstruate for the first two, and occasionally for the first three months even in intrauterine pregnancy. In Robb's cases over 35 per cent. had no menstrual disturbance. The peculiarly sudden onset of the subjective symptoms is characteristic of hematocele.

(c) Sudden spontaneous pain and tenderness in either inguinal or hypogastric regions, or diffusely or even epigastric (often attributed to trauma, jumping from a height, or lifting a weight). In some cases the pain is comparatively slight and of a bearing-down character. If external rupture, then pain continuously increasing in severity; if internal rupture (abortion), then recurrent pain is a doubtful differentiating point made by some authors.

(d) The sudden anemia, often deathly pallor, especially noticeable in the mucous membranes. The very frequent pulse, 150 to 180, small and weak, due in part to the anemia (internal hemorrhage), and in part perhaps to the shock and peritonitic irritation.

(e) Unconsciousness, or even death, may occur, or the patient may rally after the first shock, or have one or more repetitions of the hemorrhage of varying severity, even after the hemorrhage has apparently ceased for weeks.

(f) Nausea and vomiting occur in one-fourth of the cases (Robb).

(g) Meteorismus and rigidity of the anterior abdominal wall, due to peritoneal irritation (tubal abortion blood being apparently very irritating to the peritoneal surface). This rigidity is liable to be very marked just after the hemorrhage has occurred, especially if much pain; later, when the hemorrhage is older, if uninfected, there is less rigidity, but if it becomes infected, then the rigidity is the board-hard rigidity of peritonitis.

It has been said that if the hemorrhage occurred into a space long since circumscribed by adhesions, that the above signs can entirely fail. One would expect that even here the appearance of anemia would be commensurate with the hemorrhage. Certainly, if we think of the pathology, we can readily understand that in a tubal mole or peri-tubal hematocele the symptoms of shock and exsanguination might be slight com-

pared to a circumscribed retrouterine hematocele, or a free intraperitoneal hemorrhage. *The internal capsule rupture, or tubal abortion, is less liable to be lethal than the external or true rupture.*

The nearer the uterus the extrauterine pregnancy, the nearer the uterus the vessel rupture occurs, and the greater and the more dangerous is the hemorrhage, because of the larger size of the blood vessels. This might be again supplemented, by, the nearer the uterus the less liable the tubal abortion, and the more likely is the true tubal external rupture to occur.

(h) False abortion and hemorrhage and discharge of the false decidua from the uterus may or may not have occurred or be in progress.

(i) Vesical tenesmus, or retention, is mentioned by some.

(j) Constipation due to peritoneal irritation or to pressure on the rectum, which is often catarrhal in old cases, due to the inflammatory extension from the peritoneum to the proctium with tenesmus.

(k) The temperature in hematocele may be subnormal at first; later, if the hematocele becomes walled off, slight fever; if infection of the hematocele, marked fever.

The physical examination should be made both cautiously and gently if hematocele is suspected, for fear of causing recurrent hemorrhage which may be fatal. Always empty the bladder by catheter, and rectum also if possible, by enema.

(a) Inspection may (if circumscribed and risen out of the true pelvis) be able to detect the hematoma site by the bulging anterior abdominal wall.

(b) Palpation over the hematoma recognizes the increased resistance, said to be most often on the left side; in rare cases it extends to the navel.

(c) Percussion gives dullness over site of the hematocele if it extends above the pubis, usually somewhat unilateral, but may include the inguinal and hypogastric regions, more sharply outlined than ascites. Abdominal percussion is especially important in large free hemorrhage or anteuterine hematocele.

(d) Bimanual examination. The tubal mole gives a more or less hard tumor attached to the uterus by a pedicle. If adhesions have walled off Douglas' sac, and hemorrhage has occurred from the end of the tube or rupture in continuity, we find not far from the introitus vaginalis a tense tumor, often filling the pelvis posteriorly, pressing the uterus forward on the pubis, immediately behind which bone we find the cervix unless held posteriorly by adhesions. It may give the sensation of a distended cyst with thick walls, or the snowball crepitus, due to the clots. If no adhesions were previously present, then the blood being free in the abdominal cavity may easily escape notice bimanually. Later, when adhesions have formed, renewed hemorrhage gives the picture of hematocele more clearly.

(e) Per rectum the size and spherical shape and situation of the circumscribed hematocele are especially marked. It lies distinctly retrouterine, often perhaps more to one side than the other, and is apparently situated immediately on the upper part of the posterior cervix wall. Pain

and tenderness may be marked in rectal examinations in fresh cases. In some cases the uterus is said to be drawn up nearly out of reach. The consistency of the hematocele is variable, viz., soft if free, or tense if circumscribed, or hard if old, both by vagina and rectum.

(f) Deviations from the characteristic picture can occur if the lower part of Douglas' space is obliterated, since in these cases the blood tumor is higher up and is not easily reached by the finger in the posterior vaginal fornix. If the whole cul-de-sac is closed, then the hemorrhage occurs into the vesico-uterine cul-de-sac (hematocele ante-uterina). In these cases the bimanual may give but little result unless the elbow of the internal hand be lowered to the utmost, while the abdominal examination may give earlier information than in the retro-uterine. Doran reports tubal pregnancy lying anterior to the uterus and adherent to the bladder. Lastly, it should be borne in mind that many hematocele cases make but little complaint after the first shock has passed, and resume work, only calling in medical advice if repeated hemorrhages, or, indeed, never calling it at all if the symptoms are slight, they being accidental finds at a later laparotomy or autopsy even years after.

DIFFERENTIAL DIAGNOSIS.

1. Acute perimetritis and exudate with adhesions circumscribing it. The anamnesis of the suddenness of the onset of the symptoms, with shock and marked anemia and probably subnormal temperature, points to hematocele. In acute serous perimetritis we get no snowball crepitus as in hematocele. The abdominal wall is more tense, the vomiting more persistent, the fever and pain are more severe in perimetritis (pelvic peritonitis). In the chronic serous exudates the differentiation may be difficult. There is every reason to suspect that many so-called pelvic peritonitis cases, with intraperitoneal circumscription of pus, would be found to be hematocele that have suppurated, if a systematic microscopic examination were made in every case.

2. From retro-flexio uteri graviora differentiation is sometimes difficult. The vaginal examination often gives similar results, i. e., we mistake the retroflexed body of the gravid uterus in Douglas' sac for the hematocele. The distended bladder does not occur in hematocele (Winckel). The uterus is pressed forward against the pubis in hematocele. The catheterization should never be neglected in any gynecologic examination whether there is doubt in diagnosis or not.

Pyosalpinx may be very difficult to differentiate from tubal pregnancy. The anamnesis may be misleading. Pyosalpinx are usually more painful and of harder consistency due to the infiltration of the tube wall. Partially resorbed hematocele and tubal mole may also be hard to the touch. The temperature in chronic pyosalpinx and old hematocele may be both from 99 to 100 degrees. The examination of Saenger's macula gonorrhoeica may be useful as a guide. Ovarian cystomata, or fibroids that have fallen into the cul-de-sac, may simulate hematocele. The recent hematocele in a circumscribed space is often cystic to touch, while the old hematocele is often fibroid hard. The other symptoms, sudden anemia

and frequent pulse, are absent usually, but may naturally be present if an intra-cystoma hemorrhage has occurred.

PROGNOSIS.

1. The rupture and hematocele have been mentioned.

2. Resorption. (a) Resorption of the tubal mole of an early tubal pregnancy may occur entirely, the patency of the tube even being maintained. In other cases the tube remains hard and thickened. A very small hematocele may be resorbed entirely without any trace remaining. A large hematocele (if no recurrence of hemorrhage) may gradually undergo partial resorption, becoming harder and irregular, even simulating a fibroid. The ante-positd cervix may gradually resume its proper place in the pelvis. Usually there remains a hard mass of adherent bands posteriorly, limiting the mobility of the displaced uterus, which is almost never entirely restored. While sterility is common, yet in the lighter cases of very early rupture women apparently recover so completely that intrauterine pregnancy may again occur and go to term with normal spontaneous birth of the child, the impregnated ovum possibly passing through the still patent lumen of the tube of the same side or through the tube of the opposite side.

3. Calcification and formation of the so-called true lithopedion, or Kuckenmeister's lithokelyphos or eggshell, while still possible, are rarities in this age of frequent laparotomies.

4. Perforation. In the cases of more advanced development we find maceration and disintegration. The more coherent skeleton later perforating into, and evacuation via the hollow organs, viz.: (a) Intestines; (b) rectum (Dr. Dudley P. Allen, of Cleveland, Ohio, has kindly given me the privilege of reporting a case where the fetus of 24 cm. in length was expelled per rectum); (c) bladder; (d) vagina; (e) rupture through the anterior abdominal wall are also rarities for the same reason as mentioned in calcification.

3. Suppuration of the capsule and contents, or closure of the rupture opening, and rupture through, and death from peritonitis, septicemia or pyemia. Abscess cavities can remain in which pus can collect and be discharged from time to time in considerable quantities through the hollow viscera and later death from suppuration. Probably many of the so-called circumscribed intrapelvic abscesses are due to the suppuration of old hematoceles.

Infection of old hematocele can easily occur by continuity from an ascending endometritis and endosalpingitis, the tubes often being still patent. Also especially through the very common adhesion points with the intestines, through which gas-forming bacteria also gain access, and decomposition.

TREATMENT OF EXTRAUTERINE PREGNANCY AND HEMATOCELE.

The indications vary according to the conditions. Electricity and drug injections to kill the fetus are to be proscribed in these days of improved technic in intraperitoneal operating. Vaginal celiotomy is blind

work compared to that through the anterior abdominal wall which allows of a more intelligent supervision of the field of operation and a better opportunity to cope with emergencies.

In the first stage an unruptured growing tubal pregnancy should be operated on as early as diagnosed. All roughness, either in vaginal or abdominal examination or preparation for operation should be carefully avoided because of danger of rupture. Morphin, hypodermically, quiets the patient and probably lessens the liability of rupture during necessary manipulations. There still is only one indication, viz., early and complete removal of both fetus and capsule. If signs of death of the fetus, such as depression of the patient; chills, sweats and perhaps slight fever; decrease in size of breasts; oozing of milk; lessening in size of the abdomen (the abdomen, in advanced cases, is said sometimes to decrease so markedly that the woman may be accused of abortion); the indication for removal is in no wise lessened, even if some of the danger be considered removed by the cessation of fetal growth. As the chorionic villi may not cease to grow, hemorrhage would appear to be still liable for at least a time after the death of the fetus.

- In a woman who has bled profusely and by so doing has reduced the power of the lysines to combat trophoblastic proliferation and the formation of chorio-epithelioma malignum, the removal of the tube entirely would seem to be indicated. The question whether in a case where the product of conception can be easily shelled off the fimbriated extremity of the tube, we should always remove the tube itself, seems to be answered somewhat in Gratschoff's case, in which the woman has several normal term labors in between.

In the second stage during hemorrhage, to operate as early as possible, whether the symptoms be grave or not, minutes are precious, would often appear to be the only chance of saving life. Morphin injections here also tend to lessen the hemorrhage pending preparation. The dictum "if it is tubal abortion can treat expectantly, if rupture then operate at once," is too fine a distinction and not to be relied on with safety. Whether the hemorrhage is the cause of death, and as to choice of time to operate, are interesting questions. While statistics show that many of these cases do not die from the primary or, indeed, from repeated hemorrhages, we know that they do die, and probably in large numbers, with diagnoses such as heart disease, shock, etc., in cases of sudden death in which no postmortem is performed. If by waiting we have the patient rally from the shock, the chances would seem better, but expectancy here is so occult, it seems as if no rule could be made, the guide being based on personal experience and judgment.

The statistics of Martin expectant treatment 37 per cent. recover, operated 77 per cent. recover, and Schauta in the early days of operation—1891—unoperated 87 per cent. deaths. This speaks conclusively for operations. One can not quite understand when some authors speak of stimulation to improve the condition for operation. To stimulate a bleeding patient, to say the least, is open to criticism because of the great

liability to increase the hemorrhage, a thing one wishes to avoid. Personally, I should feel safer to administer morphin.

In the so-called third stage hemorrhage ceased and no danger of renewed attack, we have another fine distinction. Certainly, the longer since the last recurrence the less liability to another hemorrhage. The pain ceasing and the pelvic examination giving evidence of a reduction in size of the hemocele, are things liable to lead us to procrastinate, but one should, in view of the prognosis of old enterauterine pregnancy and hemocele, not permit himself to procrastinate, for the recovery may take months.

ECTOPIC GESTATION; CASE REPORT, WITH CONCLUSIONS.

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CHICAGO.

My idea in presenting this case is due to the fact that it shows many interesting features: first, on account of existing pathological conditions; second, from a standpoint of differential diagnosis both before and at the time of operation; and, third, as to the surgical procedure used in its treatment. Those of you who have come in contact with cases of ectopic gestation are aware of the difficulties which arise in making a positive diagnosis and of the surprising pathological conditions which are present at operation.

The patient, M. P., was 32 years of age, married, and a housewife. She had never borne any children. As far as could be ascertained, she never had any venereal disease. The patient entered the hospital on Aug. 10, 1907, and gave the following history: Supposing herself to be one month pregnant, she desired to have an abortion performed and was referred to a midwife, whom she consulted on July 28. The treatment given her by the midwife supposedly consisted in the insertion of a "silver instrument" which dilated "the neck of the womb," and the dispensing of a "pill" for her to take.

On the following day, July 29, she began to flow and have colicky pains in her abdomen, whereupon she called a physician who, after having made a careful examination, determined what was the trouble, gave her absolutely no treatment, and advised her to go to a hospital. She refused this advice, remained at home, and "took vaginal douches" every other day, and, on the following Sunday, Aug. 4, 1907, she had what she thought to be an abortion, claiming that she passed many blood clots which contained a small fetus.

On the six days following, before she entered the hospital, she had no professional treatment, but douched herself at irregular intervals, and finally, when marked subjective symptoms, viz., headache, severe pain in the abdomen and lumbar region, and temperature presented themselves, she came to the hospital for treatment. She entered the hospital August 10, ten days after the instrumental interference by the midwife. At this time she had no temperature, her pulse was 108, and she complained of tenderness in the lower part of the abdomen and showed a moderate amount of bright bloody discharge from the vagina. A vaginal examination made at this time showed the following:

(1) Slight reddish sero-sanguineous discharge. (2) Cervix flexed and pointed to the left; was slightly softened and did not admit index finger. (3) Fundus

uteri moderately flexed. (4) Distinct hard mass in left fornix extending forward around in front of uterus. This mass was very tender upon pressure.

Three days later patient had a temperature of 100 and still complained of abdominal pain and slight vaginal discharge, which the records showed to be of a dark brown color. A second vaginal examination showed that the mass in the left pelvis had increased to three or four times its former size and was soft and fluctuant. The uterus was crowded to the right and the mass very tender upon pressure. A blood count showed the leucocytes to be 6,000 per cubic millimeter. The following day her temperature was 100, and she began vomiting and complained of abdominal pain, which localized itself upon the right side.

August 20, ten days after her entrance, she was taken to the operating room with a diagnosis of pelvic abscess. Under gas anesthesia an incision was made into the cul-de-sac per vagina and a large amount of black blood clots evacuated. A five-yard gauze strip was inserted through vagina for drainage, and a diagnosis of ruptured extrauterine pregnancy made.

The following day the patient's temperature ranged between 101.4 and 103.5; pulse 38; her general condition being much worse. She complained of excruciating pain in lower abdomen; her facies were pale and markedly anemic.

Examination.—The abdomen showed upon: (1) Inspection—large tumor mass in hypogastrium extending up to umbilicus. (2) Palpation—mass hard and extremely tender. (3) Percussion—absolute dullness over tumor mass. The patient was immediately taken to the operating room and laparotomy performed.

The following pathological condition was found: (a) Upon opening the peritoneum the fundus uteri was found adherent to the transverse colon, which, in turn, was bound to the liver by fibrinous adhesions. (b) An excessive mass of black organized blood clots were adherent to the uterus and intestines and distributed throughout the peritoneal cavity. (c) The large and peculiarly shaped tumor mass previously described was then shown to be due to the forcing upward of the uterus by the hemorrhage occurring behind it, which could not escape freely into the abdomen, as the adhesions between uterus, colon and liver held it back anteriorly and the vaginal drain which had been introduced at the previous operation held it from below. (d) In the region of the Fallopian tubes and ovaries on both sides an indistinguishable mass of organized blood clots was also found, and another large mass of blood clots was removed from the pelvis, which had a characteristic suppuric odor. (e) the sigmoid flexure and the rectum showed a superficial necrosis of tissue. (f) The appendix was gangrenous and its lumen filled with pus.

The whole pelvis being a mass of organized blood clots and no distinct pathological condition being evident, the following question arose: "Is this condition due to perforation of the uterus from the introduction of a sound by a midwife, or are we dealing with a case of ruptured extrauterine pregnancy?" A panhysterectomy was done and the appendix ligated, and followed by placing the patient in Fowler's position, transfusing her intravenously with 1,500 c.c. salt solution, giving her continuous normal salt enemata and stimulation. She made a complete recovery.

The gross pathology of the uterine appendages after removal showed an ectopic gestation in the left tube, which contained a small fetus. The right tube contained a small amount of pus and showed signs of acute inflammation. Microscopic sections confirmed the above conditions.

Anatomical diagnosis.—(1) Ruptured ectopic gestation, associated with intrauterine pregnancy (?). (But can the patient's statement be relied upon?) (2) Acute purulent salpingitis. (3) Gangrenous appendicitis.

In touching upon differential diagnosis, I will discuss it only in so far as the possibilities in this particular case are concerned.

1. *Incomplete Abortion*.—As a rule, a differentiation is unnecessary, but in this case:

- (a) Signs of pregnancy,
 - (1) Amenorrhea,
 - (2) Increased size of uterus,
 - (3) Enlargement of breasts.
 - (b) History of instrumental interference with subsequent abortion (according to patient's statement) followed by septic phenomena could easily lead one to believe that a retained portion of placenta or membranes was the causative factor.
2. *Pelvic Cellulitis and Abscess.*—In differentiating this condition from pelvic hematocele we have for our important factors:
- (a) History of tubal pregnancy and sudden signs of internal hemorrhage.
 - (b) Usually absence of chill and fever, which is present early in a large majority of pelvic infections, but in ectopic gestation temperature is absent or slight and often subnormal when shock is present
It is not uncommon, however, to see a temperature in later stages of extra uterine pregnancy.
 - (c) Rapid development of tumor in hematocele, which is relatively slow in pelvic abscess.
 - (d) The uterus is usually high up and pushed forward upon the pubic bone in hematocele, which is very rarely the case in a pelvic abscess.
 - (e) Many surgeons advocate exploratory puncture as a diagnostic measure, which reveals:
 - Blood in hematocele,
 - Pus in abscess.
 (This procedure is mentioned only to be condemned.)
 - (f) No leucocytosis early in hematocele, which is invariably present in early stages of pelvic cellulitis or abscess.
In this concrete case the presence of a mass in the vagina and its typical relation to the pelvic viscera following the aforesaid instrumental interference would lead one to suspect a pelvic abscess as the existing conditions, but, as against it, is the early low white blood count of 6,000, still with the patient's resistance lowered, and the abscess well walled off, this is not of much significance.
3. *Salpingitis.*—In this affection, as a rule, we can obtain a history of infection, and in tubal pregnancy we obtain a history of pregnancy with tubal rupture, later accompanied by signs of internal hemorrhage, uterine hemorrhage and discharge of decidual membrane.
4. *Normal Uterine Pregnancy.*—
- (a) Early. In normal uterine pregnancy, there is frequently a pelvic swelling alongside of uterus, which may often be taken for an ectopic sac. the uterine enlargement being construed as being due to this condition. When the uterus has been previously hardened as a result of chronic metritis, this mistake is more liable to be made.

(b) Advanced. The uterine wall is thin and liquor amnii scanty, allowing the fetal parts to be easily palpated.

The uterus may be displaced to one side by:

- Old adhesions,
- Tumors.

In ectopic gestation, as a rule, the uterus is slightly enlarged and the tumor is separate from it and pushes it to the opposite side of the pelvis. There is also a discharge of uterine decidua with false labor pains at the time of rupture.

In summary, the following conclusions can be drawn:

1. The probabilities are that an intrauterine pregnancy did not exist and that the gangrenous condition of the appendix was secondary to a suppurative process in the right fallopian tube.

2. That a positive diagnosis of the conditions within the abdomen could not be made.

3. The surgical technique primarily used, i. e., vaginal celiotomy, was contraindicated, as it was impossible to use the proper surgical therapy necessary to correct the intraabdominal condition by the vaginal route. If later a laparotomy had not been performed, the condition of the vermiform appendix and the right fallopian tube might never have been recognized, unless found at autopsy, whereas our patient made a complete recovery.

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OBSTETRICAL WORK BY THE COUNTRY DOCTOR.*

C. B. BROWN, M.D.

SYCAMORE, ILL.

I do not expect to give you anything new and startling in this paper, rather will I run over the field of my obstetrical work during the past 32 years and simply try to tell you of my failures and successes. Since the dawn of clean midwifery there has been nothing new; no great landmarks have been passed; no very radical surgical proceedings have been advanced that have made any marked period in its history. Nor does it seem possible with the light we have to-day that the dark shadows seen in the lying-in room occasionally will grow very materially less in the future.

Obstetrics is unquestionably the oldest specialty in medicine or surgery. Obstetrics in the country can be no different from obstetrics in the city, particularly in this country (it might be so in such cities as Vienna, Paris, London or New York), for are not the mothers in the city many times from the rural sections and many of our mothers in the country born and bred in the city? I believe there is claimed to be some

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theoretical difference, but it seems to me that it can be but of small amount and have but slight effect upon the physiological or anatomical conditions concerned in childbirth.

We have in the country much more to contend with than our more favored brothers in the city, which I believe I can show you by the recital of a few cases as I proceed with this paper. I do know that there are very few obstetricians worthy the name to-day and many "Sarah Gamps." There are many men, both in the city and in the country, who attend women in confinement who ought to be following some other occupation and there would not be so many children die "a-bornin'," fewer going through life with the marks of the troublous time they had in being brought into the world by some bungling doctor.

Of course, any one can attend most of the cases of confinement that come to us, for they would be just as well off if no doctor were present. The proof of this assertion is the many safe labors without any medical attendant. Very much like our medical cases, nine out of ten people will recover without a dose of medicine at all, and I sometimes think that the less medicine they get the better, even as Dr. Holmes said, "If all medicine were cast into the sea it would be all the better for the patient, but very bad for the fishes."

It is the serious case that comes to us that needs our careful and intelligent attention. I have seen a man with a pair of forceps attached to a child's head place his knee against the side of the bed and pull the poor victim almost off the bed, in fact, use force enough to allow the forceps to slip from the poor child's head and to go tumbling over on the floor, which is outrageous, to put it mildly.

Years ago I used to see very few of my obstetric cases until I was called to attend them at the time of confinement, consequently there was very little opportunity to give many of them the much needed advice during the gestation period; during the past few years this has changed somewhat. For instance, the door bell would ring; I would go to the door and say, "Well, what is the trouble, John?" His answer would be, "Oh, it is the same old complaint," and this would be my first knowledge of the case.

We, too, are sometimes called to attend cases of confinement while we are passing through some intervening village—it has happened to me—or when out on some other case, miles from home, we are called to attend such cases. You can easily see how illy prepared we must be at times. This is much like many of our cases in the country, so that we do not have the opportunity to give these cases the advice they should have during this very important period of their lives. When I have such an opportunity, I advise them to live an ordinary state of existence, outdoor life, plenty of exercise, good food (all of which is difficult to follow at times, either in the city or country), rest when tired, a full and clean evacuation of the bowels each day. Should they have headache more than usual, more than the ordinary morning emesis, face swollen, feet edematous, scanty urine, I would advise them to consult their doctor.

I should advise a morning dose of epsom salts, enough—be it more or less—to keep the bowels freely moved each day.

I should, in the way of diet, eliminate as much meat as possible, in fact, to live the "simple life." The urine should be examined repeatedly at intervals of a week or so.

When I am called to the lying-in woman I take with me chloroform always, an instrument roll containing the needed instruments for such a case; cotton; gauze in small packages; chromic catgut in 30-inch lengths in separate packages; two or three sterile towels, each in a separate container; a bottle of bichlorid tablets; a yard package of iodoform gauze, 5 per cent.; a tube of germicidal soap containing 1 per cent. iodid of mercury (the formula, I think, of Dr. Charles T. McClintock). It is the very best I have ever used; it is convenient, efficient, the finest lubricant, and if you want to wear gloves, which I am sometimes compelled to do, place a little of this soap on your hands, rubbing it well over them, and the gloves will slip on very easily indeed. Just try it. Any other soap might do as well. All these things are sterilized. In fact, everything, as nearly as I possibly can have it, is perfectly clean, surgically clean. I first wash my hands as thoroughly as I can with brush and soap, then I procure a clean basin, a porcelain bowl, if possible. In it I prepare a bichlorid solution (sometimes a granite or tin basin is all I can get. I am not unmindful that bichlorid will corrode tin, but it is better than none at all) into which I dip my hands from time to time, or each time I make an examination, using the mercurial soap as a lubricator.

A great deal has been said by teachers of obstetrics that it is unnecessary to make a vaginal examination, that the external examination is all that is required. You might possibly differentiate a breech from a head presentation and that would be the limit. If your hands are clean, why not make an examination that would give you some idea as to what you had presenting. Of course, I would make as few examinations as possible, but I know of no way to tell what I am doing, or what I may have to do, or expect, but an examination per vaginam, and it is the only way you can get data from which to formulate your plans of procedure.

As the bichlorid solution becomes cold or discolored, which it certainly will if any blood or mucus is mixed with it, I have it renewed from time to time as the labor progresses. I always see that the bladder is empty. I make as few examinations as possible. When everything progresses favorably, as it almost always does, I let well enough alone. I wait and wait and wait just as long as the poor suffering woman will let me, and then some. So long as the head does not become impacted, I do not interfere. When it does seem to have reached a limit beyond which it can not advance I begin to find out why. Usually it is because the head for some unknown reason does not properly engage so as to pass under the pubis, which I have often found to be caused by an arm around the neck, the head is arrested against the pubis; under this condition I would apply the forceps, a little traction downward and backward will soon relieve it; then the head comes down easily enough. Do not use too much force, scarcely any; rather a manipulation than traction

and all will be over in a few moments. If you use any traction as such, you will be in danger of rupturing the perineum. Caution your patient to desist from any expulsive effort until you have by manipulation worked the anterior or pubic portion of the outlet down behind the occiput or extricate the occiput as you wish, then all will be well.

So far I have spoken of an ordinary occiput, right or left anterior position. It would be impossible to go into all the various positions in a paper of this kind. As to estimating the size of the outlet and the size of the oncoming child's head, I do not believe that it is possible for any man to do so, more than an estimate.

I have not a pair of Bandelocque's or Martin's calipers nor have I ever used them or seen them used. I defy any human being to more than estimate the size of a child's head, or the size of the outlet in the mother with any valuable accuracy. It is impossible to estimate within an eighth or a quarter of an inch, and it is just that small amount of space you need for the safe delivery of the child. It would be like a man going down the street with his hands outstretched with the measure of a door—just about as accurate. You can with experience tell better with the trained fingers of your right hand during a pain what is going to happen than by all their so-called instruments of precision. And should the head become impacted, your only recourse is the forceps.

But I caution you to wait—wait and you will find there are millions in it. I have often been goaded by the sympathizing friends to interfere in a case of labor where by a little patience all came out right and the child was born and the perineum intact. As I said a year ago, wait. Do not be in a hurry; good things come slowly and if you will only take my advice you will be surprised what wonderful things will be brought about in Nature's own good way.

You wait and wait and finally are compelled to use your forceps. It does not seem to me to be needed to caution you concerning the sterilization of everything that comes in contact with a lying-in woman. It seems to be too late in the day to be harping upon such a threadbare subject. If you are, your obstetrical record will be clean. Right here I want to say that I never attend an obstetrical case when I am attending cases of erysipelas or other infectious diseases. There is another instrument which I do not possess—Tarnier's traction forceps, and I do not seem to have needed them. It seems to me that it is a dangerous instrument to put into the hands of all medical men who attend women in confinement. It is an instrument of force, and I have always thought it was more of a manipulation than brute force—if I may so express it—that was required in the safe delivery of the child—a peculiar movement from side to side, now traction, perhaps backward, a someway that is difficult to describe, but peculiar to every case. It never seemed to me that I required the cross bar to hang on to that the traction forceps is supplied with. At least I have done very well without it and I do not see why I should change my way.

Your child is born, the perineum is ruptured. It has happened to me too many times, more times when I was in a hurry than otherwise. But

wait—the placenta—a word about it. Again wait. The only time I have ever seen postpartum hemorrhage was when I was in a hurry with the placenta. The uterine muscle is tired with its hard labor: give it rest enough to again begin to contract; then, and not till then, ought you to make any effort to deliver it. Of course, there are exceptions to this. With your whole outstretched left hand upon the uterine globe make gentle pressure, to be assured that the uterus is well contracted, your right hand making slight tractions on the cord. As soon as you can grasp the edge of the placenta or any part of it, bring it down with a kind of a rotary motion, more especially so after the body of it has passed the vulva; do not pull upon it, it may tear off; twist it round and round into a sort of a cord—be careful—wait again, and soon you will have the satisfaction of seeing the last fine shred glide out. If you are guided by what I say I do not believe that you will have much trouble with postpartum hemorrhage; such has been my experience.

A word about ergot. I use it very little indeed, much less than I used to. Of course, it has its uses.

I was speaking of the perinæum. Examine every perineum after a labor; expose it to the light; if at night use a lamp, wipe it off and see to it that you know its condition. If it is torn, repair it at once. You, young man, do not try to avoid it because you think they will blame you; rather will they blame you for not doing it, and you will not have done your whole duty if you do not do so.

I proceed in this way: Place the patient across the bed, hips near the edge; separate the vulva, so that you can see just exactly what you are about to do; have a good light—you must; place a clean sterile towel under the hips and have it well over the soiled part of the bed (you can also use the towel to lay your instruments upon. Remember that we have not two or three trained assistants to wait upon us, we are the whole of it usually on such occasions); have near you some small pieces of gauze to wipe away the discharge; begin at the highest point in the rupture in the vaginal wall and proceed down, and as you do so keep making deeper sutures as you near the outlet; now place a sufficient number of sutures on the outside, and place them deep in so as to close up any dead spaces that might be left if you used a more superficial suture instead (I always use catgut), and the mother will bless you ever after, while at the time she may find much fault.

If you have used the forceps you will find, as I have often myself, the imprint of the blade on the child's head, sometimes quite a depression. Have brought to you at once some hot water—not warm, but hot—dip a napkin in it (do not burn the child), and apply to such forceps marks and with your thumb and finger pinch them up as if you were raising the depressed portion, still applying the hot water. Keep at it and you will be surprised how soon they will smooth out, nothing but a red mark be left in a few minutes, and in twenty-four hours all traces disappear. I do not think I ever saw this little process in print, but it is well worth knowing.

I seldom see my obstetrical case more than once after confinement, and to some of them I do not make a second visit.

In my eclamptic cases I have but one form of treatment. I used to, in my earlier cases thirty years ago, bleed some of them. My practice has always been by elimination of the bowels and early evacuation of the uterus. Being called to see a case of this nature, if I could get good eliminations from the bowels by sulphate of magnesium and there was improvement, I would wait. If they did not improve I would deliver them as soon as possible, and they are all alive to tell the story.

Right here I want to express myself emphatically against the use of any kind of metal dilators of the uterus. It is impossible to dilate the cervix safely with anything but the hand or the rubber bag, or some similar contrivance. But any man who can not dilate the cervix with his fingers and hand had better stay at home and send some one who can. The rubber bag or other like appliance is well enough, but what good would they be after they had been carried about in your obstetrical bag for a year or more?

We of the country can not run around the corner to the instrument dealer and get a new one, and our old one would be no good at all. So use your fingers. It is unnecessary for me to describe in detail how it should be done. Having delivered your eclamptic patient—still keep up the elimination by the bowels, with sulphate of magnesia—and you will find a gradual and progressive improvement. I have a record of some 19 or 20 cases treated in this way and all recovered.

I never wash out the uterus, even in instrumental cases or even retained placenta, for if my hand is clean and my instruments sterilized, what will there be to wash out? It has always seemed to me that I might in doing so stand just one more chance of carrying something else into the uterus that would be better left out.

I am in the habit of using chloroform in my obstetric cases, unless the friends strongly object, or where the labor is apparently to be soon terminated. The country doctor must needs be a man of resources, especially in his obstetrical work, for he is often confronted with the most terrible scenes and conditions. He must act quickly; he must depend upon his own ability, as the only assistance he will have will be some neighboring woman, and sometimes not even that, for I have attended women in labor alone, the patient and myself, the husband having gone away for other help.

Just a case or two to illustrate the conditions we have to meet:

Mrs. G.; thirteen miles in the country; assistance, two women, both very deaf, and the husband. I first prepared everything as well as I could, gave the chloroform at the start, the husband continuing it; the women holding the patient as much as was needed; forceps delivery; adherent placenta; perineum not injured; did not wash out the uterus; successful recovery.

Mrs. R.; ten miles in the country. In this case I was called in consultation. I was met at the kitchen door by the doctor who had been with the patient all night. His first remark was: "Doctor, I have a woman here at full term being confined, in which I can't find an opening into the uterus." Of course, I thought it strange indeed, but upon examination I was in the same fix. The pains were very hard, and it would seem at each one that the whole lower segment of the

uterus would be torn forcibly from the remainder. And only after placing the patient in a good light and using dry cotton to wipe the bulging mass of the cervix dry, could I discover a minute moist spot which indicated where the os might be. With a small probe I found an opening in this globular mass, which proved to be the cervix stretched tightly over the presenting head. The opening soon enlarged, admitting the fingers. This exceedingly thinned cervix was of course easily torn; labor progressed easily enough subsequently, and all went well until the placenta was delivered, when I beheld such hemorrhage as I had never seen before and never want to see again. I forced my hand into the vagina and soon discovered that the uterus was torn above the uterine artery. With thumb and fingers I compressed the bleeding parts, when all hemorrhage ceased; by a little manipulation I properly arranged the parts, and with a few catgut sutures made quite a good cervix. I am of the opinion that had I been without medical help in this case the patient would have perished, for I did not for one moment dare to remove my fingers from the torn tissues. There was no uterine douche used in this case. The patient made a good recovery.

These two cases are only samples of what the doctor in the country has to contend with. Of course, these things all happen to the obstetrician in the city, but help is nearby and he is not compelled to proceed alone.

I have not lost one obstetrical case, neither from eclampsia, placenta, prævia nor from abortions. I have had but one seriously infected case, and that recovered. I have seen many of these cases die where I have been called in consultation, and I am not egotistical enough to think that they would not have died had I been called in sooner. I think they would have died just the same. I have never resorted to craniotomy.

Since writing the above I have been called to see Mrs. G., a multipara, having had nine children and premature births in twelve years. I saw her on Saturday night; she was complaining of a frightful pain in right hip; seven months pregnant; temperature 104 degrees; pulse, 125. I told her husband that I was of the opinion that she would miscarry; I was called early Monday morning—the next day—when the child, placenta and all had been spontaneously delivered; no hemorrhage; temperature, normal; she sank down and down and died the following afternoon, temperature being subnormal all day long. I had two trained nurses in attendance, so it would seem that there was no lack of care. I do not know the cause of this woman's death, unless it was sheer exhaustion.

When I began this paper I intended to simply tell you of my way of doing, or how I have practiced obstetrics, but I find that I have drifted into a sort of dictatorial manner. When I say "Do so and so," I simply mean that that has been my manner of proceeding.

DISCUSSION ON PAPERS OF DRs. KEYES, EUSTACE AND BROWN.

Dr. J. E. Allaben, of Rockford:—I wish to touch briefly upon two points—first, the question of etiology and, second, the differential diagnosis in ectopic gestation.

Dr. Keyes touched upon the question of etiology, referring to the views of Dr. J. Clarence Webster, namely, that in every case of ectopic gestation there must be in the tissues which develop the impregnated ovum genetic power; that is, tissue in the Fallopian tube or in the ovary must have the characteristics of Müllerian tissue. This theory is certainly very plausible, and I believe is correct. Undoubtedly other factors may figure to a certain extent, as narrowing of the Fallopian tube, which may stop the impregnated ovum in its descent to the uterus, but unless this genetic tissue is present there can be no develop-

ment. In ovarian pregnancies, authentic cases of which have been published, Müllerian tissue remains are undoubtedly present. In abdominal pregnancies the primary development is within the tube; later the impregnated ovum is released by rupture or abortion of the tube and becomes attached, if viable, to the visceral peritoneum. There is no proof, as Webster points out, of primary peritoneal development. The second point, differential diagnosis, can best be illustrated by citing a case. Some cases of tubal pregnancy may be mistaken for fulminating appendicitis if not seen for some hours after rupture of the tube.

About two years ago I saw a case giving a history of an attack of sudden pain in lower abdomen while walking down-town. The patient reached her home with great difficulty on account of pain. Nine hours later I saw her; temperature 103, pulse 140, respiration 40. Face paler than normal, but expressive of sepsis rather than of acute anemia. She had vomited several times during the afternoon. Abdominal tenderness most marked on right side.

A diagnosis of perforating appendicitis was made. She was sent to the hospital, but her condition was such that an operation was not undertaken. She gradually recovered and left the hospital in fifteen days with instructions to report later and undergo an operation for removal of appendix. Two weeks later an examination revealed a hematoma the size of a full-term fetal head occupying the position of the uterus. It was now apparent that the case was one of ectopic gestation with rupture into the broad ligament. At the operation made two days later it was discovered that the blood had dissected up the peritoneum about the uterus and so interfered with its blood supply that the uterine tissue had become friable and crushed between the thumb and fingers. The uterus was amputated above the cervix. The patient made a good recovery.

The important point in the differential diagnosis in the case was the nine hours elapsing between the time when the rupture of the tube occurred and the time at which the case was examined. Cases of ectopic gestation do not always present the typical symptoms of sudden abdominal pain, subnormal temperature and acute anemia.

Cases like the above, if not seen until some hours after the occurrence of rupture, may present symptoms of sudden pain, nausea or vomiting, general abdominal tenderness and elevation of temperature—the symptoms of appendicitis rather than of ectopic gestation. This is especially true if the hemorrhage is circumscribed, and there is present a local septic condition as in the above case.

Regarding Dr. De Lee's remarks on pelvic hematoma, I would say that the tissues removed in my case were examined by Dr. Maximilian Herzog, of Chicago, who reported finding degenerated chorionic villi, proving the diagnosis of ectopic gestation.

Dr. M. W. Bacon, of Englewood:—I want to say a few words on the last paper. I expected to have heard a little different paper from Dr. Brown, after having heard some remarks he made a year ago before this society on a paper that was read on the same subject, but he has very skillfully manipulated the subject, and I can not see that he practices obstetrics very much different out in the country than we do in the city, and I think he has so arranged it in that way. I came down here, when I saw he was on the program to read a paper, thinking I might have a chance to get at him because he is a relative of mine. (Laughter.)

I want to compliment him on his paper, except in the use of bichlorid solution in obstetric practice. I have absolutely abandoned it for several years. I believe it is a useless antiseptic and liable to do more harm than good. I use nothing but sterile gauze, and but one solution, lysol or its equivalent, and in that I think we have a good antiseptic as well as a lubricating antiseptic, and you do not need any soap or vaselin, or anything of the kind. I use also gloves.

Dr. Joseph B. De Lee, of Chicago:—Dr. Brown's paper interested me mightily. It is pregnant with good points. In fact it is a multiple pregnancy. (Laughter.)

The difference between hospital practice and country practice must be empha-

sized. As a teacher, I have to meet that necessity every day. There are present probably 25 or 30 men who have listened to my teaching, and they will bear me out when I say I teach them differently for certain operations done in the hospital than those done in the private practice of the country. It is absolutely necessary to modify the technic, and I would feel sorry if I had to meet the conditions which you men have to meet with the apparatus and assistants that you have to meet them with; I do not believe I could practice as successfully. I believe I have been spoiled by a superabundance of assistants and nurses that I usually work with.

There are certain operations that can not be done in the country. For instance, hebostomy, an operation intended to enlarge the pelvic inlet by sawing through the pelvic arch with a wire saw invented by Gigli. Hebostomy takes the place of the old symphysiotomy. This operation I would hesitate to perform in cases of contracted pelvis out in the country.

The use of the colpeurynter has been suggested. It is one of the best instruments we have, but unless a man is skilled in using it and keeps a fresh supply on hand, he will be left without one when he needs it.

Vaginal Cesarean section is another operation intended for hospital practice. In cases of eclampsia, where the cervix can not be dilated except by a skilled hand, vaginal Cesarean section will help out wonderfully. I mentioned it this morning in discussing the paper of Dr. Hollenbeck. Vaginal Cesarean section means stripping up the bladder from the cervix, cutting the anterior wall of the uterus up into the lower uterine segment, and with this method you can deliver the baby in ten minutes and sew up the incision in eight or ten minutes more. Those three operations are hospital operations.

The doctor has met cases of placenta prævia and eclampsia and has been successful with them in his private practice. He is to be congratulated. It shows that most of these complications can be handled successfully in homes with insufficient assistance. There is a difference, however, in the handling of these cases at private homes and in hospital practice. As I said this morning, I have had 5 cases of placenta prævia. Out of this number of cases three only have died. One died of sepsis a week after. She had been treated by midwives six weeks before I saw her. The other two died of rupture of the uterus. That is a small mortality. I am confident that mortality can not be equaled, and I could not have equaled it if I had to treat cases of this type three or four miles from my office in a dug-out or on a farm, where the tadpoles are floating around in the water. I have had experience in country practice, because I divide up the responsibilities occasionally. Why can better results be obtained in city practice? Without casting any aspersions upon the country practitioner, who has my admiration and sympathy, I do not believe I could work under his disadvantages and equal his results. I know I could, perhaps, after 20 or 30 years' training. There is no question but that the mother and child do better in maternity practice.

In the conduct of normal labor the doctor says, "Wait." He is perfectly right. Those of my students will remember the term "watchful expectancy," and those of you who were students under Jaggard, my predecessor, will also remember how he dinned the term "watchful expectancy" into our ears. What does watchful expectancy lead to? It leads in a large majority of cases to the saving of both mother and baby. There is no question, as Dr. Brown points out, many forceps operations are not necessary, and that with watchful waiting the woman would deliver herself safely and the baby would live. But, on the other hand, the man who is protected by the laws of asepsis, who has complete technic, and who watches his assistants and nurses, can interfere in quite a percentage of cases, when danger threatens the babies, and save them. In that way, the city man, with hospital facilities, can improve the mortality of the child. There is no question about it. However, all of my students will bear me out when I say I teach them to wait, because in the majority of cases the mothers will be saved, and also a satisfactory percentage of the babies, and the dangers of inter-

ference, for them, with their facilities, are not sufficient to justify an earlier operation.

With reference to the third stage of labor, the points emphasized by Dr. Brown are perfectly correct. There is a little more to say, however, in regard to waiting in the third stage of labor. Take a little woman, who weighs ninety pounds; if she loses much blood in the placental stage it may make her neurasthenic for the rest of her days. The country doctor has to deal with strong, able women. Of course, a certain number even of these are tubercular or unfit, but there is a greater percentage of healthy people in the country, particularly women, than there is in the city, where we have those, for example, who play bridge all night, and go to the obstetrician unequipped for a hard labor. A prolonged second stage, with a prolonged third stage, will cause them to develop a state of neurasthenia from which they may never recover. Interference may be necessary in these cases. However, waiting is the rule.

Regarding measurements of the fetal head, measurements of the head are really secondary. Tactile sense, the balancing of the head and pelvis, is really the best; nevertheless a great deal can be accomplished with instruments of precision. Other men than Dr. Brown have doubted this statement. I can measure a baby's head before it is born and afterward show that the measurement came within one-eighth of an inch of the true diameter. As to what Dr. Brown said with regard to measuring the outlet of the pelvis, I can measure the outlet of the pelvis with mathematical accuracy; not so the inlet.

I am delighted to hear what Dr. Brown said about the use of the Tarnier forceps. It is a dangerous instrument, and it is only in the hands of men who understand its dangers that I would trust its use. The doctor says he has accomplished much with low forceps. I presume he means the ordinary short forceps of Simpson or Elliott. In cases where the head was high I have used the ordinary Simpson forceps, and also one with blades $1\frac{1}{2}$ inches longer. I have had more success with this long Simpson forceps than with the Tarnier forceps. The latter has too small a head curve; it is practically a cranioclast, and has killed an innumerable number of children. I think we should restrict the indications for forceps and for high forceps. We should wait until Nature has moulded the head into the pelvis, so that low forceps can grasp it, and then be careful with the axis-traction forceps.

With reference to the causation of ectopic gestation, it is not yet certain if the Müllerian theory is correct. This theory holds that an ovum must locate upon a piece of Müllerian tissue in the tube, uterus, or perhaps an aberrant piece, on the ovary or pelvic wall. In all probability, most of the pregnancies occur on these islands of Müllerian tissue. A case is reported in the *Centralblatt für Gynäkologie*, where the ovum was located on the omentum.

Regarding hemocele, one must remember that hemocele can be caused by other conditions than ectopic gestation, and when we collect statistics with regard to the frequency of these cases we must remember the other causes. Hemocele may come from the rupture of a varicose vein in the pelvis. It may come from a hematosalpinx, or from the rupture of a Graafian follicle in the ovary. I nearly lost one woman from intraperitoneal hemorrhage from the rupture of a Graafian follicle. Again, hemocele may come from hemorrhagic cyst of the ovary, so that in diagnosing a case of extrauterine pregnancy one must find either the ovum or chorionic villi.

Dr. A. P. Heineck, of Chicago:—Dr. Keyes' paper is timely, instructive, and embodies conclusions which are based on his great familiarity with the literature of ectopic gestation, as well as on his wide surgical experience. I also wish to congratulate Dr. Eustace on the exact report and happy termination of his interesting case.

This condition, extrauterine gestation, is, in reality, of frequent occurrence. Its apparent rarity is due to the fact that many medical practitioners are not convinced of the frequency of its occurrence, don't think of it, hence often overlook its presence. In my service, at the Cook County Hospital, there were dur-

ing the last week, three cases of ectopic gestation, in none of which was a correct diagnosis made previous to the operation. In two of the cases a diagnosis of pelvic abscess had been made; in the other the case had been sent to the hospital as one of pyosalpinx. Truly, the condition is often difficult of diagnosis. Often, only a probable diagnosis can be made. We must not forget that most of those conditions which simulate extrauterine pregnancy are conditions the relief of which can be effected only by operative treatment carried on through the same route. Consequently, though a diagnostic mistake be made, the surgical intervention can always be so conducted as to be productive of good results. We must learn to diagnose this condition and, especially, to diagnose it in its early stages. By early diagnosis numerous are the women that we will save from lives of chronic invalidism; not few are the patients that can be rescued from death.

The only appropriate treatment of this condition is the operative treatment. It is distinctly a surgical affection. All other modes of treatment are unsatisfactory, unscientific and attended with high mortality. Operation must not be delayed because—

a. With every hour's delay there is an increase in the size and in the vascularity of the placenta.

b. With every day's delay the formation of adhesions between the ovum and the contiguous organs is favored, and the difficulties incident to the placenta's removal are increased.

c. With every day's delay there is an increase in the size of the ovum. The risks of primary and secondary rupture increase in direct ratio with the age of the ovum. As you have been told, extrauterine pregnancy is almost always tubal, exceptionally ovarian. If your intervention be timely—that is, if the diagnosis be made early, all that you will have to sacrifice will be the tube, and your patient will make a rapid and complete recovery. The operative procedure will be simple. The patient is not “unsexed.” The life of a castrated woman is not a happy one. The induction of a premature menopause is not conducive to the mental or physical well-being of women.

The operations which have been mentioned this afternoon, as, for instance, where panhysterectomy is done, are evidences of late diagnosis, are indictments of our negligence. These patients should have been operated on before, and if they had been the only sacrifice called for would have been that of a tube, and that is not castration. Dr. Emil Ries, of Chicago, has suggested that we should be more conservative in the treatment of these cases and only take away a portion of the tube, only remove the diseased portion of the tube. With my present information I am not able to decide whether that suggestion is a wise one or not, but I can state this—that the teaching that in ectopic gestation both tubes and ovaries should be removed, is fallacious. It has happened that ectopic gestation, after having occurred on one side, has occurred on the opposite side. Such occurrences are well authenticated, but they do not justify us in removing a healthy tube and a healthy ovary to prevent a possibility which may never occur. Normal uterine pregnancies have occurred in patients who had been subjected previously to operation for an extrauterine pregnancy.

As to the method of operating, it should invariably be abdominal, rarely ever or never vaginal, because this condition may be unilateral or bilateral, either simultaneously or successively so, and if the condition be bilateral the abdominal operation gives you access to both tubes and to both foci of disease. Other advantages of the abdominal route are that it enables the operator (a) to remedy at the same time coexisting intraabdominal pathological conditions; (b) to arrest the hemorrhage with greater rapidity; (c) to secure a more complete and a more careful hemostasis; (d) to make a more conservative ablation of organs, as the operative field is under much better control; (e) to more completely remove the fetal sac and its contents. The ovum may ascend in the abdominal cavity; in the presence of such an occurrence it is very difficult to find and to remove it by the vaginal route. In cases of mistaken diagnosis the

abdominal route enables the operator to treat those conditions that simulate extrauterine gestation. (f) To make use of the sense of sight, which, as well as that of touch, is very useful in operating for extrauterine pregnancy.

Ectopic pregnancy is an illness. It can not be interrupted too soon. This condition is a veritable volcano, and the quicker we put an end to it the better for the salvation of the patient.

Dr. Emil Ries, of Chicago:—In the treatment of extrauterine pregnancy, watchful expectancy is just as possible as in the treatment of normal pregnancy, and it is going altogether too far to say that every case of extrauterine pregnancy has to be operated on. How do we know? Because we have statistics of the results by the expectant method and by the operative method. Such statistics have been published by Fehling, whom we recognize as an authority, who reported some 40 cases of extrauterine pregnancy treated conservatively and some 40 cases treated by operation. The 40 cases treated expectantly were instances of pelvic hemocele, where the extrauterine pregnancy had terminated in a tubal abortion. It will not do to consider extrauterine pregnancy from one single point of view, because there are so many different kinds and so many different methods of dealing with it. There are several ways in which extrauterine pregnancy may terminate, and it is utterly and absolutely misleading to lay down an absolute rule for the treatment of extrauterine pregnancy, when that rule may fit one case and not another. What is right for a living extrauterine fetus may be entirely wrong for a dead extrauterine fetus, and the proper treatment for a ruptured tube is not by any means correct treatment for tubal abortion. These are two different things. If one undertook to say all that can be said with reference to extrauterine pregnancy and its treatment, it would make a good-sized book. I can only discuss a few of the statements that were made. It has been said that we should never puncture to find out whether there is pus or blood in the cul-de-sac. I subscribe to that to this extent: Never puncture without being ready to operate immediately; but if you are ready to operate at once, it is safe to puncture, and it may save you a serious mistake. Only three weeks ago I had a case of extrauterine pregnancy with the formation of pelvic hemocele, where a doctor had curetted the uterus to cure what he considered an ordinary abortion. In so doing he had infected the woman, and when I saw her I did not know whether the temperature she had was due to a pelvic hemocele or an infected pelvic hemocele. I took the liberty of inserting a syringe and got some pus. I did not operate through the abdomen, but simply did a posterior colpotomy, and the woman recovered easily. I object to curetting in these cases if the surgeon is not prepared to operate immediately, and I would warn you against curetting where there is any question of extrauterine pregnancy, because with the manipulation of the uterus, which you have to do in curetting, you run the risk of bursting the extrauterine pregnancy, which was not ruptured before you began to manipulate. You may have a severe internal hemorrhage after curetting, and you may not be prepared to meet it in the proper way.

There has been some question raised as to the proper treatment of the tube in these cases. Dr. Heineck, with his great experience in extrauterine pregnancy, which he has acquired through his work and from a careful study of the literature, the benefit of which he gave to the Chicago Medical Society recently, and whose studies have been very thorough, mentioned in his remarks that I have advised the removal of only the pregnant part of the tube, and to leave the rest. He does me too much honor. It is true I have followed that procedure, as others have before me, and some of these women have had children in the normal, natural way afterwards.

Dr. Heineck also mentioned the fact that extrauterine pregnancy has occurred on the other side afterwards. That is perfectly true; but he forgot to mention that many of these patients have had normal children after the extrauterine pregnancy in the normal way, which has occurred more frequently than extrauterine pregnancy on the other side. So the tube is not altogether useless. It

is good for something. I will not quarrel about whether we should remove the entire pregnant tube or part of the tube. If a tube has become pregnant, there is something wrong with it, but if we remove that part of the tube which is pregnant, and leave the healthy part, it may serve its natural purpose.

Dr. C. B. Horrell, of Galesburg:—Dr. Brown has given us an excellent paper. I was very much interested in it. For 25 years I have been intensely interested in the practice of obstetrics. I have had between 2,500 and 3,000 cases of obstetrics, and *I have never buried a mother*. It is true I have lost children which Cesarean section and the procedure which Dr. De Lee referred to would have saved.

As to the use of antiseptics, I invariably use a solution of lysol.

Dr. Robert T. Gillmore, of Chicago:—My friend, Dr. Brown, and myself came together last year over this same subject, and for that reason his technic in regard to the conduct of obstetric cases interests me. I want to compliment him on his technic and on obtaining such good results in his cases. He could have anticipated John coming to the door and have been prepared beforehand. It would have been perfectly feasible for him to have had preparations made for this contingency. An obstetric case is nearly always one of emergency. He could have had his obstetric outfit all sterilized in one of the many sterilizers, ready to throw into his buggy.

I wish to compliment him on having such excellent results under such difficult conditions as pertain to a country practice.

In reference to Dr. Keyes' paper on ectopic gestation: the diagnosis in many instances is practically impossible before rupture. After rupture has occurred it is comparatively easy to make a diagnosis. Some confusion has occurred by not stating definitely whether the diagnosis of ectopic gestation was made before or after rupture. Before rupture the symptoms are anomalous, and a good deal like those of an ordinary intrauterine pregnancy. The question of sterility in the history and the modified pregnancy, and especially the irregular hemorrhages which may be between the menstrual periods are probably the most important. Of course, if rupture has occurred, the woman will have a history of severe pain and shock, also of a concealed hemorrhage followed, if the patient survives, by a pelvic hemocele.

In regard to the use of the curette and sound for diagnosis, I do not think Dr. Keyes had sufficient time to discuss that phase of the subject, but I should condemn the use of the sound or curette for the reason that we do not know whether the woman is pregnant extrauterine or whether the pregnancy is in the uterus. The indiscriminate introduction of a sound or curette for diagnosis is very liable to terminate a normal uterine pregnancy.

As to the diagnosis of extrauterine pregnancy, many of these cases come to the surgeon late. He therefore can make a very good diagnosis. He has probably two or three weeks of history from some other physician who has had charge of the case. Had the surgeon seen the case at the same time that it came into the hands of the general practitioner, he might have made a faulty diagnosis.

In regard to the diagnosis, when one thinks he has a case of incomplete abortion to deal with, and is treating it for that condition, there is one thing to which I desire to call attention as being extremely important, namely, in keeping and examining the scraping from the interior of the uterus. In the past my mistakes have been more from not recognizing the necessity of microscopic examination than from any other regard. If the mucosa is curetted, and you think you have an abortion to deal with, and not an extrauterine pregnancy, it is important to keep the scrapings in alcohol; if you cannot have them examined immediately by a pathologist, have them examined at some future time for chorionic villi. If you do not find chorionic villi in these scrapings and the patient still continues to have pain and probably hemorrhages afterwards, it would be advisable to have the examination verified.

In regard to making an absolute diagnosis from the decidual cells and decid-

ing on extrauterine pregnancy, it is not always possible on account of occasional inflammatory conditions producing decidua which look a great deal like the decidua cells of pregnancy, or the false decidua found in the extrauterine pregnancy. In other words, the decidua are so much like those found in intra- and extrauterine pregnancy that it is difficult to make a correct diagnosis.

Dr. Daniel N. Eisendrath, of Chicago:—There is one point I wish to speak of, and which has been alluded to by Dr. Gillmore, and that is, a great many of these cases of extrauterine pregnancy are not seen by the surgeon until some weeks or days after rupture has occurred, and there is one symptom which has been present in a number of cases, not only of ruptured extrauterine pregnancy, but also in cases of injury, for instance, of the abdominal viscera, such as rupture of the spleen or rupture of the liver, which are not seen sometimes for three or four days after the injury. I have observed this not infrequently, and we have symptoms which resemble peritonitis in almost every particular, due to the toxic influence, or, at least, to the mechanical presence of blood between the coils of intestines. In a great many cases which we have seen at the Cook County Hospital, these symptoms did not manifest themselves until rupture had occurred for several days, or until symptoms of primary anemia had disappeared, so that it was difficult to distinguish these from other cases of peritonitis. I mention this, thinking it might be of interest from a diagnostic standpoint.

Dr. Keyes (closing the discussion on his part): What I read was only a very small part of my paper, consequently I was not able to bring out the salient points as clearly as I would like to have done. The full paper embraces thirty-nine typewritten pages. Considered from all standpoints, one could write a book on extrauterine pregnancy, and even then the tenth part of the story would not be told.

With reference to Dr. Allaben's case, I read it not only with interest, but reported it in my paper.

In regard to low grade inflammation being the etiological factor in tubal pregnancy, there may be some truth in that theory, but we can not say for certain what the inflammation is. Ovulation must be capable of taking place and the tube must be patent or the spermatozoa must have had a race with the inflammation upward and beaten the inflammation in the race. Yet again, if inflammation is the cause, why do we so infrequently find interstitial pregnancy, i. e., pregnancy in the part where the inflammation would have reached first? If there is any truth in the Clarence Webster theory—and I believe there is—we naturally would expect congenital deposits like the endometrium in the tube would be most likely to be in that portion of the tube immediately next to the uterus, yet interstitial pregnancy is very uncommon. While congenital conditions are undoubtedly important factors in causing ectopic gestation we may have a combination of inflammation also. The true cause can only be conjectured. The nidation theory, as I pointed out to you, is, however, purely a theory.

The symptoms of extrauterine pregnancy and hemocele must be clearly differentiated one from the other. In my paper I have pointed out hemocele as a probable sequence of extrauterine pregnancy. We can not divide them because they run one into the other.

Dr. Brown (closing the discussion):—I have very little to add to what I have already said in my paper. My friend, Dr. Bacon, has criticized me for using bichlorid solution. I have used it a good deal in my obstetrical practice, and I shall continue to use it just as long as it answers the purpose. Since the advent of aseptic midwifery, I have had confidence in its use. Of course, lysol solution may be all right, as well as many other antiseptic agents. I do not propose to dictate the use of these things.

Dr. Bacon has alluded to some remarks I made last year in discussing Dr. Gillmore's paper. I want to apologize to the gentleman who read that paper last year, and to say that it was a much better paper than I could write. I wish to say, furthermore, that sometimes in the heat of discussion we say things which we do not really mean, and the manner in which things are said is sometimes

offensive. In this way we create false impressions, and I fear that what I said last year created a false impression as compared with what I have said to-day. I wish to repeat that the country doctor can not always take with him to an obstetric ease four or five pans, two or three dozen towels, three or four pounds of cotton, etc. He can not do it. People at farmhouses and elsewhere in the country are usually clean. They have soap and water with which to wash their clothes and bodies, and the majority of them are as clean as the people in Chicago or Peoria. (Laughter.) A man who is dirty in the country would be dirty in the city, and if he is dirty in the city he would be dirty in the country. It makes no difference where he lives when it comes to cleanliness. If he is a clean surgeon in the country he would be a clean surgeon in the city, and if he follows surgical cleanliness in his obstetric work, he will get good results. I said last year, Let us give Nature a chance. Let us not be too smart about these things. That is the meat in the cocoon. It is the young practitioner, who thinks he knows it all, who is ever ready to seize a pair of forceps and apply them, and with such an instrument, without good judgment, he is liable to do a great deal of harm. I would say, just wait, young man. That is all I want you to do.

FETAL DEATH IN UTERO.

C. G. SMITH, M.D.

RED BUD, ILL.

CAUSE.

Much of the etiology of this subject remains unknown. But we can safely group the causes of fetal death into three classes, namely, abnormal maternal conditions, diseases truly of the fetus itself, and abnormal paternal conditions, with their relative frequency being in the order given.

Chief among diseases of the mother which cause the fetus to perish is syphilis. High temperature in the mother—105, or higher—frequently proves fatal to the child in utero; hence it is that any of the acute febrile diseases in the pregnant woman may cause intrauterine death. It is my opinion that advanced age of some parturient women reduces the vitality of their reproductive organs sufficiently to cause the fetus to perish before the normal period of gestation is completed. Page 315, vol. ii, Charpentier's *Cyclopedia of Obstetrics and Gynecology*, quotes Jacquemier as saying that he has observed that women lose a fetus with greater ease the nearer they are to the age when aptitude for conception usually ceases. The fetus may perish in utero for reason of suffering from syphilis, or from any other truly fetal malady, such as any of the acute febrile diseases. Pathological paternal conditions, including syphilis, are sometimes the cause of intrauterine death.

PREVENTION AND TREATMENT.

Prophylaxis in these cases is unsatisfactory exactly in the same ratio as the etiology is uncertain. While much has been written about and upon the question of prevention of fetal deaths, yet it is obvious that the results in this direction are not one iota further advanced, not one jot more successful now than they were a third of a century ago. If we are not able to exclude syphilis with certainty in a woman who has had

a fetus to perish without a known cause, we should, of course, institute antisyphilitic treatment, if possible, three or four months before she again becomes pregnant. But I do not believe that a physician is justified in administering specific treatment simply because he can not determine the cause of the death of the fetus. When these conditions obtain, the best and most that can be done is to place the woman in good hygienic condition, giving her the best possible surroundings, and, in that manner, favor the forces of the woman which are concerned in developing the product of conception.

So far as treatment of truly fetal maladies is concerned, we are absolutely helpless; helpless so far as prevention and treatment are concerned, as well as we are helpless concerning the discovery of the existence of the disease before the fetus has perished. If pathological paternal conditions exist which are responsible for the death of the fetus, they can usually be discovered and treated easier and more successfully than can the diseases of the mother which cause the fetus to perish in utero; the line of treatment to be instituted for the pathological paternal conditions being obvious after the diagnosis is made.

We now come to consider the line of treatment to be carried out after the fetus has died; this being the subject to which I wish to pay the most attention in this short paper.

Meddlesome midwifery is, of course, to be condemned, but it appears that in these cases the profession may have been too conservative. The disposal of the perished fetus in the mother's womb should not, in most cases, be turned over to Nature alone. While it is true that Nature sometimes, without assistance, relieves the mother by throwing off both fetus and placenta, it is equally true that Nature often fails to terminate these cases in this happy manner, and that she sometimes utterly fails, or seemingly refuses, to make the slightest effort toward relieving the mother of the fetus, which has now become a foreign body in utero. I believe it is far better for the woman to have the fetus removed at an early date, after it is known for a certainty that it has perished, than to leave it in her womb for an indefinite time waiting for Nature to bring about the desired relief. For, while we wait, possibly in vain, for the natural forces to kindly do the work for us, the patient may absorb fatal toxins, and suffer a death which would have been prevented by the timely emptying of her womb.

King, in his *Manual of Obstetrics*, page 147, says "the child macerates, or becomes 'mummified'—rolled up in the placenta or membranes like a parcel—but usually is not putrid, for the membranes have protected it from atmospheric germs." King wisely qualifies his statement with the word "usually." If two or three weeks have passed after it has been determined with certainty that the fetus has perished, and Nature fails to bring the expected relief, it is time that active measures are taken to relieve the woman. Illustrative of the point in question I wish to relate a few cases which I have recently met in my practice, one of these cases being a putrid one and still having the membrane intact.

REPORT OF CASES.

The husband of Mrs. F. K., on Aug. 10, 1906, sent an urgent message for me to come to see his wife. This woman will be 42 years old in July of this year (1908). She was married at 24; has never had a miscarriage; is the mother of seven living children; she, her children, and her husband, all are enjoying good health. This woman was pregnant ten months and had been expecting to be confined some weeks before. Upon arriving at the house I found the woman with a temperature of 104, very tender to the touch over her entire abdomen. She had the appearance of a person suffering from shock after an accident. Upon turning the bed covering back sufficiently to palpate her abdomen, an offensive odor was disclosed. Upon examination of the vagina the odor became extremely offensive. The mouth of the womb was soft and patulous, easily dilated with the fingers. After working for an hour and a half the fetus and the placenta were removed. The whole was one mass of decaying material. Liquor amnii there was none. It had evidently all been absorbed weeks or possibly months before. Upon questioning them as to why they had not called a physician earlier I was informed that the neighboring midwife had told them that it was not necessary. Finally, after lying at the point of death for five or six days, the patient improved, became convalescent, and at last was restored to health. This woman had no labor pains whatever from first to last. From all evidence at hand we judged that this fetus died at the beginning of the sixth month of pregnancy, and had been retained by the uterus about five months after its death.

This woman remained in good health up to Sept. 10, 1907, on which date she presented herself at my office for examination. She informed me that her health had been very good for the past ten or twelve months, and she had the appearance of being in the best of health. She had menstruated normally from October, 1906, till March, 1907; in March she again became pregnant, and in July she felt fetal movements; these had ceased about ten days. She feared that the child had died. Upon examination I informed her that I also believed she was again carrying a dead fetus, and advised her to return to my office ten or twelve days later for another examination. September 24 she came to my office, and after this examination I was positive that the fetus had perished, and I requested that another physician be called in order that my diagnosis might be verified. Dr. Seely was sent for and shared our belief that the woman was carrying a dead fetus, and that the same should be removed by surgical interference if Nature failed to do so at an early date. November 4 we carefully and thoroughly tamponed the vagina, placing her in the Sims position to do so, hoping of course that this procedure would precipitate labor pains. After thirty hours the tampon was removed; she had not had the slightest labor pains. The external os was soft and patulous, internal os hard and not dilatable with fingers. The tamponing was again done on November 8, with the same results as before. November 14 a rubber bougie was introduced into the uterus and the vagina again thoroughly tamponed. This tampon and bougie were allowed to remain twenty-four hours; at the end of this time the external os was soft and patulous, while the internal os still resisted all attempts of dilating with fingers. She had no labor pains whatever. Considering this quite an uncommon case I advised further consultation, which was granted, and Dr. A. H. Meisenbach, of St. Louis, was called. We administered chloroform and did a forcible extraction with the greatest difficulty, on account of the rigidity of the internal os, together with the total lack of labor pains. This lack of labor pains also obtained with the delivery of the first dead fetus in August, 1906. She recovered her usual good health in a very few days. At no time did she have a rise in temperature above normal. The fetus had the appearance of having attained the age of about four and a half months. It was not macerated, and no disagreeable odor could be perceived at any time. Undoubtedly this timely interference prevented a repetition of the septic condition which so nearly cost this woman her life fifteen months before.

Mr. J. P. first brought his wife to my office Sept. 12, 1907. She was 41 years old, well-built, and seemingly a strong person. She married at 20, is the mother of five living, healthy children, the youngest being 8 years old. At this time she was suffering from a cold which chiefly implicated the bronchial tubes. She also complained of vague neuralgic pains in the thorax and abdomen. She informed me that she was in the fourth month of pregnancy and that for about two weeks she felt quickening. The bronchial trouble as well as the vague pains subsided after eight or ten days. Her condition remained about the same for three weeks, and I did not see her again until October 20. On that date she called at my office. She again complained of vague abdominal pains. We could now determine with certainty that the fetus had perished. After consultation, on November 1, we decided to take active measures to relieve the woman of her condition. The vagina was thoroughly tamponed on November 1 and again on November 3. On November 4 no trouble was experienced in well dilating the mouth of the womb with fingers and in removing the partly macerated fetus as well as the placenta, being assisted by light labor pains. I judge this fetus was retained about thirty-five days after it had perished. This woman had no rise in temperature above the normal throughout the whole time before and after delivery. She was in good health and strong within a week after the fetus had been removed. No harm whatsoever would come to this woman by following the course which was pursued in removing the partly macerated fetus. But who can say what the outcome would have been had this disintegrating mass been allowed to remain in the woman's womb one, two, or three months longer?

Furthermore, in considering whether or not it is wiser to remove a dead fetus than to leave it longer than two or three weeks after life has passed out of it, we must not forget to take the mother's feelings into consideration. A woman who is conscious of the fact that she is carrying a dead child is not apt to pass three consecutive waking hours without allowing her mind to dwell on her unfortunate condition. She almost constantly worries over the matter; it seems to be always uppermost in her mind. Of two evils let us choose the lesser, remove the foreign body, and bring a desired relief to a disheartened mother.

CONCLUSIONS.

1. The fetus becomes, to all intents and purposes, a foreign body in the womb as soon as it ceases to be viable.

2. It is not good practice to permit a fetus to remain in a woman longer than fifteen or twenty days after it has perished. Procrastination here may become equally as harmful as meddling, early interference.

3. The removal of a dead fetus by careful surgical procedure, without the use of emmenagogues or ebolics, when carried out along the lines of strict surgical cleanliness, can not work harm to the woman.

4. It appears that the advanced age of the parturient woman, in some cases, reduces the general vitality of those forces which are concerned in the work of developing the product of conception, and this reduction of vitality may become the prime factor of intrauterine death.

DISCUSSION.

DR. J. F. HARTER, of Stronghurst: I was very much interested in the paper read by Dr. Smith. The subject is one of great importance to the general practitioner, and, like the Doctor, I am thoroughly convinced that as soon as the fetus ceases to be viable it becomes a foreign body in the uterus; and we should not

delay too long if mother Nature does not come to the rescue; and we should then remove this foreign body by adopting surgical interference.

I should like to inquire of the Doctor if in this second case, which he reported, he attempted to dilate the os under general anesthesia? I think he said he tamponed the vagina a second time, and both the first and second time the internal os was so rigid he failed to dilate it. But he did not state whether he attempted to dilate the os under anesthesia. I have never failed to succeed in dilating it under anesthesia.

DR. DAVID W. JUMP, of Plainfield: I would like to mention by way of illustration a case that came under my notice some years ago which confirms the fact of the slowness of labor pains coming on in these cases. A number of years ago a gentleman came to my office and asked me to go and see his wife, as she was about to be confined. She was forty years of age, the mother of several children, and all the assistance she had had in all her previous confinements was a neighboring woman who came in to wash the baby after it was born. That is all the help she had ever had. He wished me to come in a hurry, as the child was being born, and the presentation was wrong. On arriving at the house I found the fetus with a breech presentation, its body about half born, all pains had ceased, and everything was quiet. Thinking labor pains would come on in a little while I delayed and waited, hoping they would come on. The child had undoubtedly been dead for some time. At least, the tissues were macerated and soft, but there was no odor. There was nothing to indicate there was any septic condition. It being at night, I retired, with instructions to the husband that if anything occurred to call me, which they did at 2 o'clock, saying the woman was flowing. I hurriedly went to her assistance, and found her flowing profusely, but no pain. I immediately proceeded to extract the child, and possibly in my excitement I may have made a little more traction of the body than was necessary, but almost instantly the head separated from the body. I had the body, but the head was in the uterus. There was one of the things that confronts the country doctor in the practice of obstetrics. I was three miles from any other physician. The woman was flowing and something had to be done. I had in my grip an old-fashioned pair of Hodge forceps, with blunt hook handle. My mode of procedure in delivering was to introduce the right hand into the uterus and pass the handle of this blunt hook forceps up into the uterus, and it being soft I could without any trouble press this blunt hook through the skull, and by making traction I could grasp it with two fingers inside the skull, and in a few minutes delivery was effected. The after-birth came away promptly, and by using some cold applications over the abdomen and kneading the uterus it contracted sufficiently to control hemorrhage, and the woman made a good recovery.

DR. SMITH (closing the discussion): The first speaker (Dr. Harter) asked whether we attempted to dilate the os under general anesthesia in the second case. We gave chloroform, and I made the statement that we resorted to forcible extraction. Even after administering chloroform the internal os still resisted the most powerful attempts at dilatation. Professor Meisenbach, of St. Louis, used a large, powerful Goodell dilator on the internal os, and I administered the chloroform myself. We had the woman under chloroform, I think, an hour, possibly longer, and Professor Meisenbach worked faithfully, diligently, and hard, to get that baby, and he expressed himself this way: "Dr. Smith, this is the toughest case of this kind I have ever had in my experience."

I would like to add that no ecbolics, no ergot, or anything of that kind was given. We did not believe in administering those drugs before the baby is born, whether it be alive or dead.

PSYCHIC ABERRATIONS ASSOCIATED WITH THE DISEASED PROSTATE GLAND.*

JAMES F. PERCY, M.D.

GALESBURG, ILL.

I am not unmindful or unappreciative of the splendid work already accomplished by the alienist in ferreting out and describing the morbid mental tendencies of all classes of human beings; but I can find no report in all the literature of any country that gives a satisfactory explanation of the mental sexual aberration which accompanies the enlarged prostate. This mental condition to which I refer occurs only with the development of prostatic hypertrophy in a certain percentage of the sufferers from this condition, because prostatic hypertrophy may be present in the ordinary forms of senile dementia, and in these the senile dementia would be a rational explanation of the sexual or any other form of mental aberration. In this latter class of cases the prostatic hypertrophy is merely an accompaniment of the dementia, and therefore but a coëxistent condition, and apparently not a cause of the mental symptoms.

Neurologists recognize two forms of senile dementia: the irritable and the apathetic form. "In those patients that belong to the irritable class there is great exaggeration of the emotivity, and this explains why such patients are intolerant of impressions and of contradictions. They are extremely sensitive and irritable, and the more so because, owing to their great liability to forget things and to commit errors of judgment, they are deficient in the ordinary circumstances of family life. Such affective irritability is kept alive by their sufferings—cephalalgia, vertigo, weariness, paresthesia and other subjective disorders. The nights are passed in sleeplessness, and dream-states are frequent. The subjects are restless and get out of bed. They wander about the house in a dazed condition; they can not tell what they want, and they are quite out of their reckonings. They show great changeability of humor, sometimes even daily fits of confusion, and they suffer from hallucinatory episodes, with more or less marked agitation." "The apathetic form is characterized by a slow and progressive mental decadence, in which, besides the usual phenomena of amnesia and dysamnesia, there prevails a marked indifference to everything and everybody. This picture corresponds with what is normally found in certain old men who behold with indifference the ruin of their households and the destruction of their families. Patients belonging to this group enjoy good health and are as calm as they are vacant. They make no lamentations, and frequently are as satisfied and contented as the gods of Olympus."

In this description, borrowed substantially from a well-known authority (Leonardo Bianchi), we shall recognize types of individuals, both men and women, that we have all seen. But the totality of symptoms given above by the learned author as indicative of senile

*Read before the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19, 20 and 21, 1908.

dementia do not apply as descriptive of the mental state of any of the prostatitis whose history I shall present here. I can not believe that true senile dementia is anything but progressive. True, its progress may be held in abeyance by treatment, but that these cases improve to any marked degree or for any length of time, I do not believe. The ordinary forms of dementia which are seen in the average old person are a degenerative process which involves the textual structure of the whole brain, and this tends to destroy the ordinary elements of thought. The enlarged prostate, in its effects, is a brake which helps slow down that assembly of functions which, while in their vigor, resist death. Myocarditis, atheroma, arteriosclerosis and granular kidney, so common in those who are not young, aid in the breaking process. Senile dementia, as I understand it, is not a psychosis; but those who are old are not less free from neurotic tendencies than are the young. One of the commonly recognized causes of neurasthenia in the young male adult is prostatitis; but when that same prostate, or any prostate, has become hypertrophied, and we find the victim of this condition suffering from some form of sexual aberration, the present-day thought has not been to ascribe any relationship between the hypertrophied prostate and the psychosis.

It is, however, the old man who was sexually active before the years piled upon him until his physical energy is about gone, and who yet shows no mental deterioration, but does begin to manifest aberrant sexual symptoms beyond his years, that concerns us in this paper. True, he may apparently be a senile dement, but if, after the partial or complete destruction, by removal or otherwise, of his prostate, his apparent mental perversion disappears and he remains sound mentally, it is difficult to convince one's self that the hypertrophied prostate was not the cause of the erratic sexual wandering. It is my belief that the prostate is the reason for the symptoms in this class, which, from every standpoint, are most distressing cases; and that it is another reason for the operative removal of this gland. There is nothing irrational or mysterious about the development of sexual psychosis in the old prostate when the anatomy, the physiology, and, finally, the pathology of this gland and its environs, are considered.

The complete physiology of the prostate is unknown. The same statement can be made regarding the pathology of the prostate gland. The circumstances that are back of what is portrayed as the pathology of this gland are merely the end-findings after the disease has progressed. Pathologists give us no clew to the causes that initiated the process. It is interesting here to note that freedom from venereal infection is no guarantee of freedom from the plague of the enlarged senile prostate. The just and the unjust are alike afflicted. The anatomy of the prostate is one of the wonders of the human economy, and when its rich nerve-supply through the sympathetic and cerebrospinal nerves—to say nothing of its ducts, glands and sinuses, or, as Keyes has well put it, “the thousand-mouthed, succulent prostate”—is all considered, is it any wonder that we have a vicious form of neu-

rasthenia in the young when subjects of prostatitis, or sexual psychosis in the old when suffering from hypertrophy of this gland?

The life of the aged is the memory of the past. The memory is the growth of nerve-impressions, and a fruitful source of nerve-memories is the sexual apparatus. Is it any wonder that the old man, when plagued by the gradually enlarging prostate, with its pressure, congestion and obstruction, stirring within him the recollections of other days, should endure mental suffering that is most distressing? Many of these patients are in insane asylums. Many can be found in the government and state soldiers' homes all over the country, as well as in the various county almshouses, to say nothing of those to be found in their homes and among friends. Many of these inmates are plagued by all sorts of sexual phantasms, which lead them into the various revolting practices known to be habitual with some of them. This study rationalizes the pelvic diseases of men where there is a pathological condition that may give the reason for the mental manifestations.

It is possible that a certain proportion of the sexual neurasthenies and sexual perverts may have as an explanation of their mental aberration a pelvic rather than a brain pathology. Certain it is, that an earlier recognition of disease of the prostate and its appendages, with the mental symptoms that may accompany it in the young or old male, would, in a certain proportion of cases, save the pride of the family of the sufferer and prevent the moral health of communities from being undermined. The burning sensation, together with the feeling of fullness and heat in the perineum, will set up an irritation which is expressed through the sympathetic and cerebrospinal systems; and out of this will grow visions and mental vagaries until the old man becomes a prey to all sorts of phantasms that finally make his life a mere sexual fetish. Before the diagnosis of senile dementia is made, and this used as a reason for not instituting surgical measures, I would advise that the case be judged purely from the standpoint of the surgical problems involved, and not from the mental condition. If the patient is physically able to bear the brunt of a prostatectomy, he should be given the benefit of the doubt.

In the three cases that I shall report herewith the mental condition was restored to normal, sufficient time having elapsed since their operative recovery to permit the making of this statement with confidence. In the case of J. B. D., senile dementia was the rational explanation of the sexual abnormality, but he entirely recovered, and remained well for five years, when I lost sight of him. This was my first case, but, although more recent, as much can be said of the other two. The diagnosis, then, of the senile dement is uncertain in the presence of active irritation of the prostate, so that it is a reasonable statement to make that, even if the patient is believed to be in the beginning stages of senile dementia, the removal of the prostate will, in a goodly proportion of cases, postpone the progress of the mental failure in a number sufficient to make it a justifiable procedure.

But it is not these doubtful or last-resort class of cases that I have in mind in presenting this subject for your consideration. It is the type

of cases that is not yet worn out physically, but that has developed an enlarged prostate and with it a psychosis that makes the social and business future, to say nothing of the mental phases of the case, an unpromising one. The patients, if normal, would have a certain number of valuable and comfortable years before them; but they are not normal. Their abnormality, however, is of the character where pathology has invaded normal physiology, and the result is a pathological physiology, which in this class of cases results in a disturbed mentality.

CASE 1.—J. B. D., aged 75 years, operated on March 2, 1898. Resection of both vasa deferentia according to White for enlarged prostate. Infiltration anesthesia. In the week of preparation, because of septic bladder, this patient was discovered leaving notes couched in lascivious terms where they would be found by the nurses. Resection of the vas deferens in this case was followed by marked improvement in his prostatic troubles, with consequent relief of his bladder symptoms. He was in the hospital two weeks after the operation, and there was no further complaint as to a repetition of the causes which made him obnoxious before the resection of his vas deferens. He was questioned as to his former attempts to interest the nurses in his amorous schemes; but could give no clear reason except a distress in the perineum, which kept him stirred up sexually most of the time. I saw this patient frequently for five years after he was in the hospital, and there was no recurrence of his mental wandering, and he expressed himself as satisfied with the improvement in the power to empty his bladder.

CASE 2.—Mr. B., aged 63 years, whom I saw in January, 1897, was suffering from an abscess of the right lobe of the prostate. His suffering was acute, and the prostration was great. The abscess was incised through the perineum. At the present time the prostate can be palpated as a small mass on the left side, with nothing on the right side. This case is reported, however, because of the change in the moral life after his recovery from his prostatitis. He was always a leader in the religious and business life of the city in which he made his home. He is a man of wealth and engaging personality, and yet before his prostatic abscess changed the morbid current of his sexual activity he had started an undercurrent of breathless scandal because of his sexual relations with negro women. This man is now nearly 74 years of age, and I have every reason to believe that he has recovered entirely from his morbid psychic sexual irregularities following his recovery from the prostatic abscess ten years ago. I can also add that his mental condition is still good. He is actively engaged in business and there are no signs even now of an impending senile dementia.

CASE 3.—S., aged 74 years. He was operated on in June, 1904. This man was a lawyer who had given part of his professional career to the bench. Disruption of his home was threatened because of his unnatural sexual relations with various members of the lower animal kingdom. The surgical removal of a very large, juicy prostate restored the mental unbalance of this individual to its normal standard, and now, after three years, he possesses none of the psychological manifestations which made him a horror to his family and former friends.

I have reported these cases because I believe that their consideration from the standpoint of a psychosis is more rational than to class them among the senile dements. If their symptoms are merely psychic, as I believe, then they need not prove less favorable as good surgical risks than if they suffered from any other operable surgical disease.

This subject opens up the very important consideration of the prostate gland from another viewpoint than that of the purely anatomical and pathological. As surgeons, our training has been to consider this gland from only the two viewpoints just mentioned; but I believe that the

history of the thyroid gland is to be repeated, in some measure at least, in our future consideration of the prostate. Only a few years ago the thyroid was considered from only its anatomy and pathology; but its physiological importance to-day is receiving greater attention than either its anatomy or pathology. The enlarged prostate, just as the enlarged thyroid, is, in great part at least, an abnormal physiologic process, and, although this statement may convey nothing new, it is true that it has not been and is not being accepted by the rank and file of the profession. Teachers, text-books and writers still consider the prostate from the standpoint of mere morphologic change.

If the three cases above reported teach anything, it is that there is a clinical physiopathology of the prostate which expresses itself chiefly through the cerebrospinal and sympathetic nerves as a functional disease, just as the perverted physiology of the thyroid gland expresses itself through the same system of nerves with the same results, so far as a mere brain-expression is concerned.

DISCUSSION.

Dr. Frank P. Norbury, Jacksonville:—I have listened with a great deal of interest to the paper by Dr. Percy, wherein he advances some new ideas regarding the functions of the prostate gland in its influence upon psychic life. I am forced to differ with the doctor, at the outset, because of his faulty psychopathology.

The three cases detailed by the author are not unusual in occurrence in the senile period of life. The mental reductions of this period are, in the majority, of the dementia type; yet the cases here recited can not be classed as such, and, in my judgment, surgical intervention, as directed especially to the prostate, has had nothing to do with the recoveries which Dr. Percy claims to have obtained. Why? Because the mental changes of the senile period, while involuntary, are not necessarily different from other periods in life. By that I mean that certain morbid mental affections have varied periods in life wherein they are defined and old age may be one of those periods. All senile insanity is not dementia, nor do involuntary changes alone occur during senescence.

Again, it is as natural for a man to hang onto life during the senile period as at any other time or period. The fear of death, the self-preservation, which is the first law of Nature, apply to the functions of the body as well as to life itself. People teach themselves to fear death; to fear old age; to fear the loss of bodily functions. To them, death of functions is the end of life itself. Death to them is the end of life. Life does not end with death, with some of them; they fear the tortures that are to follow. It is from this viewpoint—a psychological viewpoint—that many persons contemplate their future state, and when in the involuntary stage of life, sexual conditions come in to be a part of this contemplation. Sexual thoughts, ideas, judgments, are just as real and as much a part of psychic reactions as thirst, as hunger for food, as the desire to live. In that great storehouse of psychic reactions, the subconscious self, sexual thoughts exist, and when the real psychology of sexual life is written, we will find that it is a dominating factor in life and conduct, little dreamed of in our philosophy of life. Sexual psychology can not be studied; can not be discussed with the thoroughness due it, for obvious reasons.

Freud, in his psychical analysis and methods, has presented to us results obtained from thoroughness of such an inquiry, but he also tells us of the difficulties which stand in the way. The mere presence of sexual ideas dominating conduct, to my mind, do not in any way indicate the prostate as concerned in the genetic side of this problem, nor do I believe the surgical interference upon the prostate contributed to the results obtained, excepting such as would follow from any

surgical operation elsewhere removing a lesion which may contribute to ill-health. I have repeatedly seen in senile involutionary melancholia, which to me is the class to which we should assign these cases of Dr. Percy; patients improve, convalesce and recover following relief from a carbuncle. I have also noticed relief follow an attack of erysipelas, also lobar pneumonia and any other condition which in some way adds an increment to metabolic processes conducive to recovery.

I have in mind now a case of a man, defined involutionary melancholia, with pronounced sexual symptoms and who, during his life, led an exemplary life; whose reputation in the business and social world, in church work, philanthropy, was known as a national character; yet that man, during his mental discordant state, had sexual ideas and practices which were shocking. He made a good recovery; his sexual ideas ceased; he returned to his mental health, perhaps not on the same plane as before, but his sexual habits were never questionable and he lived a useful, quiet, homogeneous life.

Dr. Percy is wrong in his pathology. His cases are not dementia. What is dementia? It is an organic gradual obnubilation of mind. Such cases never get well. Melancholia is a functional, and may be, involuntary impairment, and many such cases get well. Dr. Percy gives us histories of this type of cases and endeavors to weave into his picture the psychology of sex, ascribing to the prostate what is really instinct. Sexual instinct is late in development; it is born within us but not developed until puberty. It is not a part of normal conscious life until adolescence, then as a living factor, consciously or subconsciously it shows itself in conduct, in sex differences. Sexual instinct is an organic instinct like walking. It is an instinct developed by habit; habits are co-ordinations built up. So it is with sexual habit. The author, Keyes, quoted by Dr. Percy, tells us that it is the most imperative habit that we have. We know that sexual life and habit can be held in abeyance. We know that it can dominate and rule when inhibitory influences are removed, and by reason of impairment of inhibition, it may be a most difficult habit to control.

Now, psychologically speaking, anything which disturbs inhibitory conditions, such as emotions or the affectivities, may let loose all control over sexual conduct. This is what happens in insanity, and the dissociations thus created let conduct run riot. Normal emotional life controls behavior. Normal mental life is one continuous process of integration and organization. Abnormal mental life means disintegration, disassociation. This disintegration, disorganization, or disassociation is due to the impairment largely of inhibitory control; conscious conditions are disturbed and what these normal conditions are can only be known by having a knowledge of the individual; his personality, etc., as represented in all of his reactions, conscious or subconscious, to all stimuli.

I could say more as to this creation of a personality, but time will not permit. But I would like to say this, that the sexual conduct of these individuals shows nothing more nor less to me than what would be expected when inhibitory influences were disturbed and sexual ideas prevalent, as they are in many such cases, based upon the instinct of self-preservation carried to the sexual functions.

I would also say that Dr. Percy is mistaken in his consideration of what arteriosclerosis, atrophy, etc., have to do with the psychoses of age. Time will not permit me to elaborate this point.

Dr. Percy (closing the discussion):—I am very grateful to Dr. Norbury for bringing out the side of the neurologist and the alienist in considering this subject, but I am not yet convinced that the removal of the prostate in these cases did not serve some purpose.

As to what was said about erysipelas and carbuncle, I will say I would rather remove a man's prostate because, in addition to that, I would relieve the patient of the obstruction and of a condition which I believe is necessary to his physical well-being, incidentally removing the other conditions. There is not a physician of any considerable experience who has not had such cases as I have detailed to contend with. At the meeting of the Western Surgical and Gynecological Asso-

ciation, held last December, and before which body I read this paper, it was exceedingly interesting to me to hear the surgeons there discuss this class of cases, but which they did not classify in the way I have done. And this is a horrible chapter in human life.

I picked up a newspaper the other day and saw an old man, 80 years of age, who had married a girl of 16. If that old man's physician had persisted in removing his prostate, it would have been of great benefit to him, and a good thing for the girl, unless she married him for his money. We save the pride of family which I have referred to by operating on this class of cases. The man I spoke of is a judge. They came near sending him out of town. Now, if by operating on these patients we can relieve them of this psychological tendency, then I think it is justifiable to do it. At any rate, I am glad to have had the opportunity of bringing the subject before you.

A NEW UNIT OF ENERGY IN INFANT FEEDING.

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CHICAGO.

In the feeding of adults we have been accustomed to pay more or less attention to the energy of the food; for instance, it has been customary to place the energy requirement of an adult man at moderate work at 2,700 to 3,300 calories per day. If we place the average requirement at 3,000 calories and the weight of the average man at 150 pounds this would give 20 calories per pound, or an energy quotient of 20. This amount also represents the energy usually allowed for a professional or business man. For a hard working man and for athletes it has been customary to place the energy requirement much higher than this—4,500 calories or more. For a man who has little work or exercise the energy requirement is usually placed at 2,400 to 3,000 calories, and a bare subsistence diet is placed at 1,800 calories or the equivalent of three quarts of milk or two loaves of bread.

The standards for other than adult men were approximately as follows: For a woman under like conditions of age, exercise, work, etc., the energy requirement was placed at .8 as much as for a man, for boys and girls of various ages there were standards more or less suitable except that for very young children, for example, for children under two years the standard was placed at .3 that for a man or about 900 calories. Now since the weight of a child under two years changes more rapidly than at any other period, it is readily seen that a standard of 900 or 1,000 calories for a baby which may weigh 10, 15, 20, 25 or 30 pounds is no standard at all. Nine hundred or 1,000 calories may be a suitable amount of energy for a baby weighing 25 pounds, but is entirely too much for a baby weighing only 10 or 15 pounds.

In infant feeding to-day perhaps it is not too much to say that as much attention is paid to the energy value of infants' food as was ever paid to the energy value of the food of adults. That this is true is probably due to Heubner, who first made a careful study of the energy requirement for an infant and showed how important it is to control the daily energy of the baby's food, and it is to Huebner probably that we

owe the more rational plan of relating the energy to the weight rather than to the age of the baby. He placed the energy requirement of an infant at 100 calories per kilogram of the body weight, but since in this country neither the average family nor the average physician either weighs or thinks in kilograms, we put this standard of Huebner's in the more readily understood English equivalent, 45 calories per pound—the kilogram being equivalent to 2.2 pounds.

I find that the calorie as a unit of energy is to say the least not a household word and even to those who know what it means it does not seem to be very real or tangible. One very frequently has to explain that the calorie is really a unit of heat representing the amount of heat required to raise the temperature of one kilogram of water through one degree centigrade or, in the more familiar English equivalents, one pound of water through 4 degrees Fahrenheit. When transformed into energy it represents the work that would be expended in lifting 1.53 tons one foot high, or 153 pounds 20 feet. While the baby doesn't do any work, still the little, often-repeated motions use up a considerable portion of the daily energy, but the greater portion of the daily energy of the food is expended as heat in maintaining the normal temperature of the body and in that internal chemical work of the body which we call metabolism.

How do we find the energy value of a food, that is, how many calories will a certain amount of food yield? Since the baby's food is composed of fat, proteid and carbohydrate, and since the energy or caloric values of these are known, we simply take the amounts of fat, carbohydrate and proteid in the food and multiply these by their energy values.

When burned in a calorimeter:

1 gram of carbohydrate yields	4.1 calories
1 gram of fat yields	9.3 calories
1 gram of proteid yields	5.7 calories
But when consumed in the body we cannot obtain from 1	
gram of proteid more than	4.1 calories

In the more familiar English this means that:

1 ounce of carbohydrate yields	116 calories
1 ounce of fat yields	264 calories
1 ounce of proteid yields	116 calories

From this it follows:

1. That 1 ounce of fat is equal in energy value to 2.25 ounces of proteid or carbohydrate.
2. That proteid and carbohydrate are equal in energy value.
3. That .01 ounce of sugar or proteid yields 1.16 or 7/6 calories.
4. That 1 calorie is obtained from 6/7 of one hundredth of an ounce of sugar or proteid.

Suppose for example we desire to determine the value of an ounce of milk containing 4 per cent. fat, 3.5 per cent. proteid and 4.5 per cent. sugar.

.04 oz. fat yields 4x2.25, or.....	.09 of an oz. of sugar
.035 oz. proteid yields .....	.035 of an oz. of sugar
.045 oz. sugar yields.....	.045 of an oz. of sugar

Total17 ounces of sugar

Therefore, the energy value of an ounce of this milk is equivalent to the energy that can be obtained from .17 ounces of sugar, that is $17 \times \frac{7}{6}$ or almost 20 calories. As the energy values of whole milk, skim milk, and cream are generally taken to be 20, 10 and 50, respectively, we do not go through the above process, but simply multiply the number of ounces of whole milk by 20, the number of ounces of skim milk by 10, etc.

Whenever the amount of food is known and we desire to find its energy value in calories we multiply the sugar equivalent of the food in ounces by 116 or in hundredths of an ounce by $\frac{7}{6}$ and conversely, when the energy value in calories is known and we wish to determine the proteid or sugar value of the food required to supply this energy then we divide the number of calories by 116 to obtain the amount in ounces, or we divide by $\frac{7}{6}$, or multiply by $\frac{6}{7}$, to obtain the amount of food in hundredths of an ounce. For example, we are feeding a baby weighing 14 pounds, 20 ounces of whole milk and 1.5 ounces of sugar and we desire to know how much energy this yields and whether it exceeds our standard of 45 calories per pound of the baby's weight.

20 ounces milk yields 20×20 , i. e.	400 calories
1.5 ounces sugar yields 1.5×116 , or $150 \times \frac{7}{6}$, i. e.	174 calories
Total	574 calories

This divided by 14 gives an energy quotient of 41.

Suppose we desire that this baby shall receive 41 calories per pound, and that we expect to give it 20 ounces of whole milk. Then the problem is how much shall we add in order to give just the total energy required.

Energy required, 14×41 , i. e.	574 calories
Energy supplied by milk, 20×20 , i. e.	400 calories
Balance to be supplied by sugar	174 calories
Sugar equals $174 \times \frac{6}{7}$, or	1.50 ounces

It must be admitted that 116 and $\frac{7}{6}$ or $\frac{6}{7}$ are not convenient factors. We simplify the operation a little by using 120 and $\frac{6}{5}$ or $\frac{5}{6}$, but it occurred to me, why should we use any factors at all? Why not dispense with the idea of calories altogether and use as the unit of energy one-hundredth of an ounce of sugar, which, as we have seen, is a somewhat larger unit than the calorie— $\frac{7}{6}$ of a calorie. We need only familiarize ourselves with the idea, one-hundredth of an ounce of sugar, as the unit measure of energy. Our work will be just as scientific and just as accurate. Fractions will be eliminated from our calculations and all our energy and food determinations will be simplified. I was the more inclined to take the hundredth of an ounce of sugar as the unit, since I had already taken the hundredth of an ounce as the measure of the unit amount of proteid in all my work regarding the maximum and the minimum proteid standards.

Since calories multiplied by $\frac{6}{7}$ give hundredths of an ounce of sugar our standard of 35 to 45 calories per pound per day is seen to be equivalent to 30 to 40 of these new units. This represents 3 to 4 level teaspoons of cane sugar. When once we are familiar with this new way

of expressing the standard, we have no further need of thinking in calories or making calculations in which calories are involved. We simply find the sugar equivalent of the food as in the case above in which we found the energy value of whole milk in sugar units to be 17. Other examples such as toast and an infant-food will serve to show that the method differs only from the calculations of the caloric value in that it is shorter, simply multiplying the fat by 2.25 and then adding to this the proteid and sugar. Tables giving the composition of foods are readily available and in these the composition is given in percentages. These numbers then may be taken as hundredths of an ounce. Thus bread or toast has the composition fat 4, proteid 9 and carbohydrate 57. The energy of 1 ounce in sugar units is therefore $4 \times 2.25 + 9 + 57$, or 75. Similarly the energy value of one ounce of an infant-food having the composition fat 8, proteid 16, carbohydrate 68 is $8 \times 2.25 + 16 + 68$, or 102 units.

But any one using this new unit will work out the energy values of all the foods he uses once for all and thereafter he will remember the energy value of each food or will keep a little table just as in the case of the caloric values.

To illustrate how simply our food and energy problems are worked out when we employ the new unit let us take the two problems we have already used as examples.

1. A baby weighing 14 pounds is to be fed 20 ounces of whole milk a day and 1.5 ounces of sugar. Does this give an energy quotient in sugar units less than 40?

20 ounces milk yields 20×17 , or	340 units
1.5 ounces sugar yields	150 units
Total	490 units

Energy quotient, 490 divided by 14, or 35.

2. The second problem would be: The baby's food should furnish an energy quotient of 35. It is to be given 20 ounces of milk. How much sugar must be added to make up the energy to the required amount?

Energy required 14×35 , or	490 units
Energy from milk 20×17 , or	340 units

Sugar to be added 1.50 ounces

The only objection I can see to the use of the new unit is the lack of a short expressive name. I would suggest centun—centum and uncia—or sugar unit.

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INFLUENCE OF SPECIALISM ON THE GENERAL PRACTITIONER.*

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A boy sat on a rock, fishing with a hickory pole and line, with a can of worms and a string of fish at his side. Along came a man with a

*Read before the Morgan County Medical Society, Jacksonville, Ill., May 14, 1908.

jointed rod and reel, with a full assortment of flies, etc. "What are you fishing for, my little man?" said the sportsman. "I'm fishing for anything that will bite," said the boy. Presently he hooked a good-sized trout, and, finding himself unable to land it with his hickory pole, called to the trout specialist to come to his aid. With his landing net, the man secured the fish, waited till the boy extracted his hook, and quietly walked off with it. "Halves!" cried the boy. "No," said the man. "This is my fish. I limit my fishing to fish large enough to eat. You have no right to try to land fish of that size with your outfit. You are not prepared for that kind of work. Stick to general fishing, and I'll give you 10 cents a dozen for all the minnows you catch for bait."

The manner in which specialism affects the general practice of medicine and that in which it affects the practitioner may be very different indeed. Taken abstractly, we can not give too much credit to specialism in medicine. It is specialism that has made medicine in its broadest sense what it is. It was specialism that gave us aseptic surgery and obstetrics; that made abdominal and cranial surgery possible; that gave us the germ theory of disease; that abolished hospital fever, and the horrible mortality of the maternity ward; that gave revised mortality tables for almost every known disease, and places among the preventable diseases those former scourges—yellow fever, smallpox, typhoid fever, diphtheria and tuberculosis; that made many a blind man see and prevented thousands more from becoming blind and deaf.

These are some of the things that specialism has done for medicine and humanity at large. But the question still remains, what is the influence of specialism on the general practitioner? I use the term—general practitioner—in a restricted sense, meaning one who is residual legatee to whatever is left after the surgeon, the neurologist, the gynecologist, the ophthalmologist, the rhinologist, the otologist, the laryngologist, the dermatologist, etc., have claimed all belonging to them and a great deal more. If surgery comes in for a large share of our attention it is because of the manner in which it overlaps the work of the general practitioner and lays claim to everything in sight.

Specialism has taught the general practitioner the best of all he knows, and in doing so it has added just so much to his responsibility. The tree of knowledge bears more than one kind of fruit. After all the art of medicine in great part lies in diagnosis, and the early diagnosis of tuberculosis, of appendicitis, of uterine cancer, of mastoid involvement, of empyema, of the various forms of septicemia, of diphtheria, of polypi and adenoids, is always as important and often as difficult as their later treatment by the specialist. But although the conscientious practitioner recognizes the decree, "To whom much is given, of him shall much be required," he can not enforce the converse of the proposition, "Of whom much is required, to him shall much also be given."

There is much to be said on this subject. It is far from being settled. Whatever may be the cause, or whoever may be to blame, when one department of the medical profession demands for itself from three to ten times the recompense that is paid for the same amount of time

and ability displayed by another branch of the same profession, and has its claim allowed by the public, we need not wonder if there is dissatisfaction on the part of the one who finds that after a successful year's work in a well-established general practice, his income is but one-fourth to one-half of that of his next door neighbor who has expended no more brains or energy than himself.

But who, if anybody, is to blame? The physician, the surgeon, or the public? Let us dispose of the public first. Personally, I think the attitude of the public toward the surgeon is idiotic. We have all seen this same "public" waiting in a row for a chance to consult a surgeon on a question concerning which from the nature of his practice he knows little and cares less, when they could at the same price get the services of a physician whose time and interest is devoted to these subjects. I say at the same price, for surgeons, as a rule, doing general work, are careful not to charge too much for anything that can not be called an operation or a consultation.

It is this attitude of the public toward the surgeon that makes the work of the general practitioner so thankless and profitless. There is a glamour about an operation; always dramatic, often unavoidably tragic. There is a spectacular halo around the head of the most modest surgeon as he dextrously snatches the victim from the jaws of death. If the jaws close before the snatching is complete, it simply proves that the surgeon was not called soon enough. The victim was probably wasting his time and opportunity with a general practitioner.

The awful import of the operation is fully corroborated by the surgeon's bill, which is generally based upon the supposed money value of the life of the individual if he survives, or his total bank account if he dies. It is easy enough for the surgeon to say that the physician is to blame if his services are not appreciated by the public, but these same men compete with us at exactly the same prices that we charge where their work comes into competition with ours. They even encourage patients to go to the hospital for medical treatment under the plea that it will not cost them so much as to have daily visits at their homes.

Laymen are not all fools in the matter of choosing a physician, but enough of them are to make it worth the surgeon's while to cater to their everyday trade, and most laymen think they have struck a bargain counter if they can hire a surgeon at \$2 an hour to make visits after charging their next door neighbor \$200 for an hour's work the day before. And who knows but a pain in the back may be appendicitis or a floating kidney, for which it is well to go to the surgeon direct, and save middleman's profits? Yes, I think I may say that most men are idiots on the subject of surgery, and the more a great many of them know, or think they know on general subjects, the greater fools they are on this one.

So much for the public. But so far we as physicians have no just cause of complaint. The field is open, let all compete who will. If general practice is overcrowded, let more, especially the young men, enter special fields, and if there is no room for more specialists, let more

general practitioners prepare to do the most of their own surgery. That, do doubt, is the true solution, and for any man under 30, or thereabout, to complain of existing conditions without making an effort to adapt himself to these conditions is unreasonable. But every great change imposes a hardship on some one, and while the adjustment is being made the question is an acute one. And herein lies our cause of complaint, not that the major surgery goes to the surgeon who is better prepared to do it than we are, but that with the major surgery goes all the minor surgery, such as we are prepared to do in our capacity of general practitioner, and much that is not surgery; much that we feel that we are prepared to do, and do it better than the surgeon.

It is not that the surgeon gets \$200 for a laparotomy which terminates a chronic ailment to our loss and our patient's gain. No, not for a moment! But that following that laparotomy and because of it, come other cases of chronic ailment, that need no surgery; acute cases of all kinds that go to his office on the strength of the reputation that we have helped him to build up. I do not mean that they hold our cases after operation. The surgeon would rather have the good will of the doctor than of any one of his patients, but it is the other cases that go to him direct because of the cases we have sent him. Every time we refer a case to a specialist, even if consultation is refused, we help build up that specialist's reputation to our own undoing. Of course, it is too much to expect of a man to give up what he has captured by his own bow and spear and has once in his possession. Having worked for a specialty, the specialist naturally wishes to hold everything that goes with it.

But if it is too much to ask of a specialist to turn away work that comes to his door, drawn by the magnetism of the reputation he has struggled so long and so hard to acquire, it is also asking too much of the physician to stand smilingly by and see a large part of the best-paying practice of medicine go to the men whose fame he has helped to build.

The principal objection to physicians doing their own surgery is that they do not do enough to keep in practice. Yet the surgeon does not consider that the fact that he has not a half-dozen cases of typhoid fever, pneumonia, etc., in a year disqualifies him for the care of such diseases, no matter how fairly well equipped for their care in his earlier practice before giving all his interest to surgery. How much time or interest can a surgeon spare for the study of non-surgical complications of typhoid fever or pneumonia or puerperal eclampsia, etc.? On differential diagnosis between the sore throat of scarlet fever, diphtheria, and tonsillitis? Yet he takes these cases when they come to him on account of his fame as a surgeon, provided they are good pay. For a surgeon soon becomes able to adopt the motto: Practice strictly limited to profitable cases.

Who ever heard of a surgeon's declining, systematically, or as a rule, cases of diphtheria, pneumonia, scarlet fever, obstetrical cases that would come to the hospital, typhoid fever, syphilis, etc., on the ground that they are out of his line and he has not had time to keep up with the latest teachings on the subject? No, the whole tendency of his work as a surgeon is toward the opinion that if Nature and the surgeon can not cure them, there is no use to call a physician. Their whole attitude

toward medicine is one of skepticism if not nihilism, and the growing disbelief in medicine on the part of the public is largely due to the skeptical attitude of the surgeon.

Do surgeons call for consultation with anything like the readiness that they expect of us? And still they criticize medical men, and I think justly, for holding on to cases until too late for surgical help. How often does a surgeon in purely medical or doubtful cases suggest, of his own accord, that some physician be called into the case, as it is more in his line?

The only branch of surgery that is not monopolized by the surgeon is obstetrics, and the only reason is that this work does not pay for the time and discomfort spent upon it. Yet they seldom refuse a case if the fee is larger than usual, and never refuse cases that can be brought to the hospital. A difficult case of labor requires more diagnostic ability and operative skill than an ordinary case of appendicitis or ovarian tumor, yet surgeons who do not see a half-dozen cases of normal labor a year are sought by the public as the proper consultants in cases involving the life of two patients instead of one.

When I assert that no Cesarian section should ever be made except by the best general surgeon obtainable, I assert with equal force that no surgeon should ever make a Cesarian section except upon the recommendation of the best practicing obstetrician within reach. Yet what surgeon would ever think of calling upon a general practitioner to decide upon the best manner to deliver a child, or whether it could be born in the natural way?

A word about that unpleasant subject of fees: The specialists tell us it is none of our business what they charge. Let us look at this for a moment. Specialists do not recognize the responsibility that a physician assumes when he advises an operation. When a surgeon calls me to give an anesthetic to one of his own patients, I am responsible for the life of my patient while on the table. My responsibility ends the moment I get him with a fairly good pulse back in his bed. I charge \$5 or \$10, as the case may be, and I care not, professionally, one whit whether he lives or dies from the operation. The surgeon who advised and performed the operation must shoulder the burden of responsibility, not only of the patient living, but of his being benefited by the operation. He will hear from that patient for years to come. It is none of my business what he charges him.

Now, change it about. I make the diagnosis, and advise operation. It may be an appendicectomy or an ovariectomy, or a tonsillectomy, or removal of adenoids. The patient depends on me. The operator assumes little responsibility. Any good operator would be willing almost to insure a successful outcome as far as the life of the patient is concerned.

The operation performed successfully, and the patient having left the hospital, "as well as could be expected," the surgeon's responsibility ceases. Mine continues for years. The patient still has, or may have, those pains for which we advised operation. The child still breathes through its mouth or has tonsillitis. Is \$5 or \$10 going to repay me for the responsibility, not only of the anesthetic, but of the whole opera-

tion? Or, if a success, is this to be the measure of my reward for my services? "But you should charge more in these cases," says the surgeon. We do, but by the same token they should charge less and leave us some margin to stand on. And, moreover, we should be able to assure our patrons honestly that they are not paying as they say, two doctors instead of one by going to their family physician instead of to the surgeon direct. If surgeons would say, truthfully in such cases, when rendering the bill, "I am doing this work for Dr. X., who is sharing the responsibility with me. I charge my own patients more," they would be simply doing justice to the patient and the physician and there would be less talk of a division of fees.

The very nature of the case makes it impossible to make any comparison between medical and surgical charges. Written or unwritten, there is always a standard of prices in a community as definite as a scale of artisan's wages or the price of sugar and coffee. For visits and office prescriptions definite charges are made, varying within comparatively narrow limits with different patients and different physicians, but clear cut, well defined, subject to addition and subtraction. Let a well-to-do man die after a prolonged illness at his home, where he ought to be, unless needing hospital care for his own welfare rather than the convenience of the physician, and the administrator asks, or may ask, for an itemized account which is rendered accordingly, set down in black and white, subject to addition and subtraction like a grocer's bill.

Let the same man die after anything that can be called an operation at the hospital, and there is no itemized account. No addition or subtraction. Just one big bill. Now, understand me, please. It is not the one big bill that we object to. That, as the surgeon tells us, is none of our business; it is the fact that an exceedingly large number of these old cases go to the surgeons for some real or imaginary surgical ailment at some time in their fight against old age, and not a few die in the hospital that should die quietly at home in their own beds.

Some of you may remember an address given by Dr. Roswell Park, of Buffalo, at the state meeting at Quincy several years ago on *Borderland Cases of Surgery*, or some such title. He showed that not only one organ after another had been invaded by the surgeon, but now surgery was claiming for its own one by one, all the so-called borderland diseases, beginning with appendicitis and gall-stone colic, and ending with gastric ulcer, Bright's disease and exophthalmic goiter. Even in pneumonia, syphilis, tuberculosis, typhoid fever and obstetrics, if a physician is entrusted with their care it is well to have a surgeon at hand in case of complications.

I do not recall any of his statements, but the general impression left with me was that surgery, beginning as a branch of medicine, had grown until it had covered and claimed as its own all the borderland, leaving non-surgical medicine still clinging to measles and whooping-cough, and willing to be called Internal Medicine or any other name by which it could maintain its identity, and escape oblivion.

When Balboa discovered the Pacific Ocean, he waded into it, sword in

hand, and in the name of the King of Spain, laid claim to the ocean and all the lands bordering thereon. The claims of Dr. Park and his followers for surgery are about as extensive. No, the surgical line is no longer a line, but a multiplicity of lines running in all directions and so interwoven that it looks like a seine, through which nothing big enough to fry is allowed to pass.

A word of prophesy in closing: Surgery is no longer the mystery that it was a few years ago. More general practitioners will, in self-defence, make special preparation along surgical lines, and do all the surgery they can get and hold, and a few that have more nerve than conscience will always be found willing to substitute confidence for skill.

Of course, there will always be the surgeon. The true specialist, who will not be ashamed to admit that there are fields in the realm of medicine that he has not had time or inclination to explore, And if he is a philanthropist as well as a scientist, he will use his high position to the benefit, not only of his brethren, but of humanity at large by helping to raise in the esteem of the public the general practitioner; the family doctor, without whose intelligent conscientious concurrence much of the best work and knowledge of the specialist must come to naught.

THE CLIMATIC FALLACY.*

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Years ago phthisiotherapists were usually of one opinion—send people afflicted with tuberculosis to a western climate, or one that offers dry air and sunshine for the most part the year round. In recent years the opinion of the best men throughout the country has been influenced more or less by their own observations in the treatment of the disease, and home treatment, or sanatorium treatment, in one's own climate has in many instances been advised. The question of climate has been discussed pro and con by the best writers throughout the world; but as yet no definite conclusions have been reached which permit us to say that any one climate is a specific in the treatment of the disease. Fair minded men are not held by any hard and fast rules, and usually consider the case from all standpoints before proffering their advice.

Dr. F. I. Knight, of Boston, during the climatic discussion at the 1905 meeting of the National Association for the Study and Prevention of Tuberculosis, gave utterance to as fair a remark as one would wish when he said: "It is strange that the factors of climate should have no effect on the individual with tuberculosis, when they certainly do have an effect on him when he has not tuberculosis."

I am a firm believer in climate. Coming west in a far advanced stage of the disease, and with a laryngeal complication which cost me my voice for eight months, and in two years' time making an apparent

*A Reply to Dr. J. W. Pettitt's Article in the ILLINOIS MEDICAL JOURNAL, April 18, 1908.

cure, I feel that I am justified in my climatic faith. All of this, too, in the face of arguments brought forward by some of the best men in the middle west against my coming here, for as they said, "You had better stay home and die easy." And die I would, had I remained east, for every week found me losing ground, even while faithfully following the lines of treatment advocated by the best pulmonary specialists in the United States. The change of climate acted as a stimulant far better than all the drugs in the Pharmacopeia. My appetite increased, and in one week I had gained five pounds. When one is called to treat a case of typhoid fever he does not say, "Show me the darkest, dampest, filthiest room in the house," but, on the contrary, he looks for one filled with good air and sunlight. So with climate in tuberculosis; get the country that will give you the greatest possible amount of air and sunshine out-of-doors the year round.

That climate is not to be found in the north, in the south or in the east, but in the high mountainous regions of the west and southwest. Here in New Mexico, at an elevation of 6,000 feet, we think we have as ideal an all year round climate as can be found anywhere on earth. The winters are comparatively warm, while the summers are cool. The average maximum temperature in summer does not exceed 80 degrees F., and the sensible temperature, because of the absence of humidity, is not nearly as high. In winter the mercury during the day will stand at 50 degrees F. in the shade, and as high as 120 degrees F. in the sun. The nights are cold, there being 30 to 40 degrees difference in temperature between day and night. This alone is one of the greatest stimulants known. The air is pure and not filled with the many disease producing organisms found in lower and damper regions.

Before Fort Bayard was made a sanatorium for tuberculous invalids of the United States Army it was said to have the lowest sick report of any post in the country. Because of the turf covering the ground in this section, dust storms are almost an unknown factor.

I can well see why patients with little means should be kept at home and given the best chance their home climate offers. We of the west are of the unanimous opinion that it is a crime to send a tuberculous invalid away from home to a far country when he is without means to live in idleness for at least six months. In advising a change of climate the physician should invariably ask the question, "Can you afford to stay idle and live in comfort for at least six months to a year? If so, then go west and chase a cure in a well appointed sanatorium." I say sanatorium, for it is my honest belief that tuberculosis can not be as successfully treated outside an institution as in one. The multitude of lungers thrown on their own resources in the many towns of the southwest, dying by the hundreds, are pitiable examples of the sacrifice of human lives to so-called home treatment of tuberculosis. That better results are obtained in sanatoria in the west and southwest than in the north and east I firmly believe, and as proof of this statement I shall append a table showing the results in 100 cases taken at random from the records of the New Mexico Cottage Sanatorium. Compare these

cases with the same class of cases treated in the north and east. An incipient case with us is a "rara avis." They are kept home, vainly chasing the phantom "cure" until the disease has made such inroads that their case is all but hopeless. Then, with a pulmonary condition that words fail to describe, they are advised to go west in the endeavor to prolong their lives. These cases we get, and you can judge for yourselves the results obtained from a careful study of the table.

Just why Dr. Pettit should use the title "Climatic Fallacy" I can not understand. The words sound harsh and unfair, when one considers the great work being done in the western section of this country. I believe he has a wrong idea of climate and its relation to tuberculosis. No one claims that it is the essential factor in the treatment, any more than one claims favorable surroundings an essential factor in the treatment of any disease. But that it does play a part, and not a minor one, any fair minded man must admit.

In an article on blood pressure published in the *Archives of Internal Medicine*, I pointed out the fact that blood pressure on residence in a high altitude is increased; that with increase in blood pressure the patient tends to improve, the increase and improvement being coincident; that our cases here average 25 mm. of mercury higher pressure than Thayer's cases, which were those at low elevations, or practically sea level. It seems to me, as I stated in this article, that perhaps we have a clue to the improvability and curability of climate in the treatment of tuberculosis.

Dr. Pettit goes on to say that the majority of lungers going to the southwest die, and few stay to get well, or at least regain their health enough to become permanent residents. Let me say in contradiction to that statement that the greater part of the residents of Colorado, New Mexico and western Texas are, or were at one time, sufferers from tuberculosis. Two-thirds of the population of Silver City, a town of about 5,000 inhabitants, belong to that class, the majority of whom Dr. Pettit says die after reaching this country. The other third is made up of Mexicans, in whom tuberculosis is seldom known to exist. This very fact—the absence of tuberculous infection among the native population—seems to me conclusive proof of the purity of the climate of this region.

The reference to the article in *Collier's Weekly* is misleading, to say the least. The writer does not intend to convey the impression that the climate in this section is not of value in tuberculosis, but, on the other hand, is appealing to eastern physicians not to send poor consumptives to this section to be thrown on the towns for support. In this appeal we all heartily concur; for a man without means, and too ill to do even a little work, is far better off at home, where he can be well cared for by friends. This, however, as Dr. Pettit must surely see, is no argument for or against climate.

The only apt quotation given by Dr. Pettit is more an argument for climate than against. Let me quote it here: "No advanced worker in this line would to-day, as was formerly done, place climate first in the order of therapeutic measures. Let it never be forgotten that hygiene,

diet, teaching and supervision must always come first, but granted that they are properly attended to, then enters the powerful rôle of climate, reinforcing and accentuating the effects of these other measures, and yielding results that can not be approached, even with the same care and watching and food, in less favorable climates." "One member of the committee that made this report," says Dr. Pettit, "refused to concur"; and here it is interesting to note that his one man lives in one of the most unfavorable climates in the United States. That he is sincere in his opinion I have no doubt, but that he is misguided in his judgment I am perfectly certain.

Dr. Pettit says that it is almost impossible to obtain the proper food for tuberculous invalids in the arid regions of the southwest. If the doctor will visit Silver City I will agree to furnish him with an abundance of rich milk, fresh eggs and all the green vegetables fresh from our farm, together with other food products equal to any in his more favored country, as he might call it. We have a ranch of fifty acres under cultivation, which furnishes all the summer vegetables in abundance, and a herd of cattle which supplies the sanatorium with fresh milk and cream. The cattle pasture on a range of 420 acres of fine grazing land—all this, too, in the arid regions of the great southwest.

Dr. Pettit says, further, that the only people in the west who insist on climate are those who are ignorant of existing conditions elsewhere, or who are directly interested in keeping up the delusions. This is a harsh and unfair statement to come from a man whom I believe to be just in his attitude toward others of the profession. We are not highway robbers west. We do not beg for victims of the white plague. We are not here for commercial reasons, but to treat tuberculosis as scientifically and as honestly as our professional brothers of the east. We never ask for patients; they are sent to us by the best men in the east and middle west, which seems proof again of the climatic belief and not of the "climatic fallacy."

The acute diseases, as pneumonia, influenza and the acute infections, rarely, if ever, are seen as a complication of tuberculosis in this climate. These diseases do as much toward killing tuberculous invalids in the east as tuberculosis itself. In answer to Dr. Pettit's questions, I can say from our own records that our cures are as long standing and as free from relapses as the same class of patients treated in the less favorable climates. The average stay of patients in the sanatorium is from six to nine months; a higher average, I think, than most of our eastern sanatoria can boast. As to the impoverishment of families, I have never seen a case under our care that ruined the financial standing of relatives. On the other hand, in many deserving cases we have been able to secure help for the patient, thus giving him ample opportunity to get well.

The last question, Why is it necessary to comply with the same conditions as are necessary to obtain success elsewhere? To me it is an absurd one indeed. It would be as sensible to ask, Why is it necessary to feed a patient when you are giving him iron for anemia? If we understood climate a specific, then the question might have some place in his

article; but knowing, as Dr. Pettit surely must, if he is conversant with the ideas of the best men west, that we consider climate only as a powerful secondary factor, then his question is relegated to the realms of the ridiculous.

Now, after studying the statistics as put forward in the following table, I will leave the question of the climatic fallacy to the honest judgment of any of my colleagues who may happen to read this contribution to climatic phthisiotherapy.

Two cases came to us arrested. The remaining 98 give results as follows :

INCIPIENT, 24 CASES OR 24+ PER CENT.		
Apparent cures.....	16	or 66 + per cent.
Arrested	5	or 20 + per cent.
Improved	3	or 12 + per cent.
Died	0	
MODERATELY ADVANCED, 24 CASES OR 24 + PER CENT.		
Apparent cures	4	or 16 + per cent.
Arrested	4	or 16 + per cent.
Improved	14	or 58 + per cent.
Progressive	1	or 4 + per cent.
Died	1	or 4 + per cent.
FAR ADVANCED, 50 CASES OR 50 PER CENT.		
Apparent cures	6	or 12 per cent.
Arrested	8	or 16 per cent.
Improved	13	or 26 per cent.
Progressive	20	or 40 per cent.
Died	3	or 6 per cent.

THE BORDERLINE OF MENTAL DISEASE.*

FRANK P. NORBURY, M.D.

JACKSONVILLE, ILL.

There are era-making events occurring in this day and age, educational movements, which are pointing the way of the growing sentiment—the world-wide sentiment—in the cause of humanity, wherein prevention of disease is the aim and object. As an index we have but to look at the International Congress on Tuberculosis which has just adjourned after holding its sessions in Washington. This great movement for the suppression of tuberculosis is but one of many which should concern the people. Among these is one which is an invasion into the field of clinical medicine of modern sociology, namely, the study of mental diseases along broader lines than those necessarily pursued by the clinician.

Sociology considers the problem in its correlated position with reference to all that concerns the social welfare of mankind. It is an endeavor to seek the ounce of prevention which in return is to give its hundreds of pounds of cure. It is in this respect a national problem, because it concerns the integration of a nation. Sweden recognized this, when, in 1847, the King delegated Magnus Huss to study the causes of disintegration which then threatened the social welfare of his nation. Huss found this source in alcoholism, which involved not only individuals, but families and communities, and true to Morels' law of dissolution, was rapidly causing an increase of insanity, to say nothing of vice and crime. Then

*Introductory remarks at the meeting of the Illinois State Conference of Charities at Rock Island, Oct. 12, 1908.

it was for the first time that the borderline of mental disease became a national problem. Laws were enacted which were an index of enlightenment of the growth of social instinct which seeks the common good, by cultivating even by coercion, the protection of the community through its individual members. To-day the problems of mental disease are more than ever before the people, and it is truly remarkable how little is known by the laymen, and even the medical profession in general, regarding mental diseases. Insanity is a result of natural laws which to-day are being studied by scientific men, with a view of determining not only their clinical significance, but with that greater purpose of prevention, and to teach the people how to live that mental disease may not occur. The people must first learn to see less of the horror, less of the curious, and more of the kindness, and cultivate true beneficent philosophy which comes from the consideration of "put yourself in his place."

Again, as a nation and as a state, we must learn that we have this burden of the alienated in mind to bear, and to this end the state must study these laws through which these individuals have become its wards. The increase of insanity is a natural result of laws which have existed since man came upon this earth, and if all insanity now existing was blotted out to-day, ere to-morrow's sun went down, it would reappear. Why? Simply because the laws of dissolution are a part of the omnipotent laws of heredity. Heredity primarily has one great object, the preservation of the species, man. The borderline of mental disease when man feels the blight at the top, is but the order of events which follow cause and effect. In order to study this borderline state we must study the individual, his character, his personality, his nutrition, and all that contributes to innervation, fatigue, and disorder. Then we have a chance to preach the reversal of conditions thus contributing to disintegration. Then we can study conditions as they are, and in exhaustive measures, change the order of events. This means more than tentative measures in our therapeutics. This means more than mere suggestion as how to live; it means a conversion of the individual through educational methods, coercive if necessary, so that prompt and early first aid may be given to the injured mind. This means a study of individuals. This means an easy and early way to hospital care. This means a revision of our laws which now look upon subjects of mental disorder as aliens from society, and treated under ancient and time-losing legal methods. Do you wonder that families hesitate to take steps toward the hospital, and are willing to use tentative measures in the treatment of borderline mental states, when to take these steps means to cast a reflection upon the retiring modesty and gentle womanliness of the patient by parading her before an ordinary jury of her peers? We need legislation that will put mental disease on an equal footing with ordinary, everyday disease, using such safeguards as will protect the property rights of and unjust discrimination against the patient. Again, we need psychopathic wards attached to our general hospitals, where prompt first aid care may be given. Every city of 1,500 inhabitants needs, and urgently, too, such a hospital arrangement. The question of clinical study of mental diseases demands

urgent need, and physicians trained for the work must be provided, likewise, nurses.

Let me here say in passing, that nurses and physicians for this work must recognize it is a field demanding the highest order of intelligence, a moral force, a desire to serve, and a God-fearing belief in their mission. In every community there must be instruction in the causes leading to insanity, such as worry, high tension living, and poor personal and general hygiene. When this information is disseminated, and the people learn how to live, just as they are learning regarding tuberculosis, we may expect to see a reversal of our present insane hospital statistics.

There is no reason why this should not occur. It is not impossible. The world-movements noticed in Germany, Sweden, France, England, Ireland and the United States, wherein temperance in all things is being taught, will sooner or later bring society to realize that mental disorders are a part of the social disease as well as individual disease, and to prevent it we must all live right, do right, and believe in the eternal justice and goodness of God's creation.

THE PROBLEM OF THE PUBLIC CARE OF THE INSANE.*

ADOLPH MEYER, M.D.

Director Pathological Institute of the New York State Hospitals.

NEW YORK CITY.

I shall never cease to be grateful for what seemed to be at first a harsh fate, that of finding myself as a new arrival in the service of a state institution of Illinois at the very time when Governor Altgeld had established a sad record by partisan management of the state institutions. Dr. Hektoen had asked me one day whether I would care for a position as pathologist at Kankakee, where Dr. Dewey wished to organize the work. I happened to see Dr. Clevenger and to tell him about it and was not a little surprised at his informing me that he had just been decided on to be Dr. Dewey's successor. I was then appointed by him; but thirty days after my provisional appointment I had to witness his sad breakdown, and to go through one of the most exciting moments of my medical career, that of having to explain to a board of three laymen what a pathologist was, anyhow; what I was supposed to do and whether there was adequate reasons why they should countenance the introduction of such a position. Many heads had fallen in this inquisition. I survived with my salary cut in two. The experience was, however, worth what I lost. I saw the institution live through the interregnum, a wonderful testimony to Dr. Dewey's administration and the safe routine that existed and the readiness of a few persons to meet the emergency almost as if they dealt with an every-day occurrence.

*Delivered at the Illinois State Conference of Charities at Rock Island, Oct. 12, 1908.

Then came a most interesting period of readjustment under the new State Board, composed of Miss Lathrop, Dr. Bettman and others, and under Dr. Clark Gapen, and gradually an approach to conditions which gave me a deep conviction of the justification of confidence in the great people of the west, such as I never could have gotten except through such direct experience. When in 1895 a call to take a position in Worcester, Mass., came, I had much to regret in having to leave my co-workers in the west. Had I made my start under different conditions I feel sure that I could never have made up for what I had learned in the state which was the home of Abraham Lincoln, that greatest personification of confidence in the good will and good sense of people, even under trying situations. I should certainly have been like so many others, unable to understand which is the strong element of the, at times, turbulent metropolis of the prairie and the great state to which it belongs. Having seen Illinois during a period of vehement fermentation and unrest, I could follow even the sad period of last winter, without much doubt as to who would win. There was certainly no doubt as to the quality of the members of the State Board, the kind of people back of them, and your Governor Deneen.

It was in Illinois that I turned from a narrower plan of a life's work in neurology, to one much broader, that of helping in the development of the care of the insane, and the gradual evolution of a definite policy of which I am called upon to speak to you to-night. It is a grand field for a life work for any, and full of opportunities in which I hope to interest you enough to make you feel that all of us can take our share of activity and satisfaction in it, and that we stand under the sign of positive and constructive action.

As I come back to you, I find a remarkable progress here as elsewhere; a strong and most energetic central board, and hospitals rising vigorously from a kind of glacial period of political domination; a State Board of wonderful constructive capacity and with achievements which I feel sure even the hostile forces can never wipe out; a State Board and hospitals which have given the other states many a valuable new thought and demonstrations of new possibilities. Here is a fertile ground for a lasting achievement. There still is much to be done. Illinois has a grand opportunity. But for that it must uphold the best policy that has ever been shaped for her.

What I wish to give you is a picture of the great responsibility and of some new reasons why our people must move onward and reinforce a policy of construction and of unrelenting elimination of unprincipled party animosity. In the huge task of your Board of Charities there is one great field in which the physician is the agency to be relied upon for proper work. We find here the insane, and the feebleminded and the epileptics and reformatory work. Out of this field I am requested to pick out the problem of the state in the care of the insane. What does that mean, "the insane"? I begin with the statement that we should not without reserve speak of "the insane" as a "special and well-defined

class," but rather consider the side of action, that the state makes a special type of provisions.

A fairly large number of our population is exposed or exposes itself more or less constantly to conditions in which they jeopardize the health of their brain so as to endanger their capacity of individual and social adaptation and efficiency. Many of the arising difficulties and disorders of balance are called merely nervousness; others interfere so deeply with the conduct and behavior, and even the possibility of conduct and behavior, that a condition is reached in which the person's judgment is so untrustworthy that he should not be allowed to drift to destruction unaided like a rudderless craft; just as little would you leave a case with typhoid delirium without restriction. There are evidently conditions in which it has been found best to give the patient protection against himself and at times even against his relatives and strangers, and it has become a law in most countries that a patient reduced in his capacity of self-conduct and self-determination shall be given the benefit of special supervision by authorities, and care in specially licensed hospitals, a few of them private, but most of them created by the state.

Thus has arisen a gigantic and inevitable state monopoly of institutions in which these cases can be cared for. They are not merely a charity, for a class, but really the only places to which the great majority of our people must look for help in time of distress. The nature of the diseases there treated has led to the monopoly and the state must show itself equal to the task. It assumes a tremendous responsibility. Not only must it provide for the best possible medical treatment and for the physical welfare and comfort of its huge number of patients, but it must strive to make its institutions centers of progress, which must be concerned not only with meeting the emergencies of the day, but with the more far-reaching problems of prophylaxis and the stemming of the tide of increase. The institutions for the insane are indeed the nucleus of a far-reaching special provision. Who are the objects of this provision? When we mention the insane and mentally defective, the large number of even supposedly well-informed persons, among them many physicians, think of a mass of unfortunates who are hopelessly wrecked, to be segregated as much as possible, provided with proper care and kept from complicating the life of the normal and adding to the number of the degenerated. With this goes another misconception, even more serious than that of thinking merely in terms of the "insane class." It is the notion of "once insane always insane," which is a grave misconception.

I wish I could give you exact figures as to how many now in active and responsible life in the community have been in our hospitals for months, or one, two, three, ten and more years, and as to how much time of efficient life has been restored to them by the stay at the hospitals. (Or I should like to take the over 20,000 patients who figure on the New York statistics of 1900 and find out what has become of them, and then what had become of the accessions.) Most of these facts are not obtainable, owing to the insufficient way in which the data are collected by our inadequately organized official departments. But we have some reliable

figures after all. The number of cases admitted from their homes per year reaches the ratio of between one-fifth or one-sixth of the total number figuring as capacity of our hospitals; an equivalent of a little over 25 per cent. of this number leaves the hospital restored to their previous standards, that is, recovered and capable of taking care of themselves; and easily 25 per cent. more become well enough to get along at home, while the remainder swells the ranks of the more permanent hospital population, more than balancing the deaths. The actual care of the recoverable cases in the hospitals takes from a few months to several years; 25 per cent. of those who recover demand a hospital residence of over one year and quite a few must therefore perforce be part of the more permanent hospital population for two, three, four, six or eight years, which therefore must be kept up to a mark, with an atmosphere of activity and hopefulness, and not as indifferent provisions for the incurable. There is no patient who can not be benefited by adequate attention. (Thus is the character of the diseases?)

Another point showing the grave responsibility of the work: the statistics of 1905 in New York showed that the total death rate in the institutions per year was 8 per cent., but that 40 per cent. of all the deaths occurred among patients in the first year after admission, which is 15.6 per cent. of those admitted within a year. You thus see the great responsibility resting on a hospital in connection with its admission rate. Some of the deaths are inevitable; others are not and may take away recoverable persons. That is a point on which we should have statistics to determine the efficiency of hospitals. How many recoverable cases are lost annually from avoidable causes? Insanity is still less a unit or homogeneous mass when we want to work in prevention, in the field to which the work is bound to extend.

A little scrutiny would show at once that there are a great variety of mental disorders of very different meaning and nature, and that there are also considerable differences in the various strata of our community. I studied the mental disorders due to alcohol in my observations at the Worcester Insane Hospital, Massachusetts, and found striking differences in percentage. Among the men of Protestant Massachusetts stock committed to the hospital only 9 out of 100 had some form of alcoholic insanity, while among the men patients born in Ireland 50 per cent. had characteristically alcoholic disorders, a striking evidence of the differences of the problem of prevention in the two strata of population. Comparative statistics of country and city districts worked up by the Willard and St. Lawrence hospitals bring out the fact that while a city of 12,000 furnishes 15 per cent. with general paralysis, rural districts furnish only 6 or 5 per cent., showing the difference in the frequency of syphilis in these regions. On the other hand, the country districts as compared with the cities furnish more than twice the number of agitated depressions, strong evidence that the country has its own faulty ways of meeting difficulties. All this suggests that differences in conditions make themselves felt and that the matter of insanity is not merely the fatal and unanalysable result of our active life. The suburban counties of the metro-

politan district of New York have only from 2 to 4 admissions per 1,000 inhabitants per year, while the average for Manhattan Island is 8 to 9 per 1,000. Yet the commuter's life is far from being free of care, and the excess of the patients furnished by the more densely populated districts can hardly be laid altogether at the door of the inevitable degeneracy. All those forms of mental disorder which vary according to locality suggest an inquiry into the possibility of changes in the conditions, but, for this, one must know the patients and their conditions, and at the same time the locality and its conditions.

All these facts are put together here to show that the care of the insane, and prophylaxis which should render many such cases unnecessary, can not very well be separated. Up to to-day we can safely say that no systematic and well-informed efforts have been made to achieve this. It is doubtful whether the hospitals can do their share unless we obtain organized cooperation with the people from whose midst the patients are recruited. Here then is a great and eminent opportunity: Our hospitals must not only be the centers of curative activity, but, since in all chronic cases prevention must come to the front, the hospitals must act even beyond the hospital walls on what information they gain in the care of the cases, and our state authorities must be given all the support that a far-sighted policy can give. This is a task hardly realized as yet except by a few hospitals in which a so-called after-care movement has been initiated, in the sense in which I discussed it in the New York reports.

A modern plan of handling the problem demands in the first place a sufficient organization of the work within the hospital. When I came to Kankakee that was ridiculous. Only six physicians for 2,200 patients, and one of them claimed that he would be able to do the whole work himself! And, being the only Democrat, he became acting superintendent during the crisis. One physician to 50 or 60 cases in the treatment services and one to every 250 to 400 cases in a colony service are the very outside figures of what the best physician might do. The size of the hospital should not be greater than a superintendent with a well-organized staff can intelligently handle. The maximum size should not exceed 1,200 cases, or 1,500 at the most, and even then, and still more in larger hospitals, the work must be subdivided more clearly among several physicians of experience to attain efficiency and so as to attract as many first-class physicians as possible. Where efficiency is continually subordinated to economy, where the work is grind and devoid of development, we drive out every ambitious person from our medical staffs. Your State Board is working hard to obviate this and it is a most serious issue.

The medical work in our hospitals has become a more and more responsible task. To-day to ensure good work in a model hospital every patient is given a most thorough examination, which must be more painstaking than in a general hospital because our patients rarely can be depended on to draw the attention to oversights, which therefore are apt to occur and to be specially lamentable. To assure accuracy and control the result of the examination and the patient are presented to the entire staff in at least three consultations and discussions while at

the institution. No trouble is spared to get the facts for intelligent action and advice. An agent is in direct contact with the physician and with the patient and also with the relatives outside while the patient is at the hospital, so that efficient simultaneous work can be expected concerning the adjustment of the conditions under which the patient had become ill, with a purpose similar to that of a Board of Health in providing for disinfection and quarantine in the sphere of the diseases that come under its charge.

Such a plan of work is all-important with diseases which take sometimes months to develop under conditions which, so far, the hospital has not considered it its duty to investigate. Chronic diseases are not properly handled by mere patching up. It is necessary to go to the root of the evil, to straighten out the environment, and to prepare the patient to be able to meet reasonably the difficulties which can not be removed. That must in part be the duty of the state, and it can only fulfill it in cooperation with the friends and communities which are supposed to form the healthy environment fit for any one to live in. To simply deplore from year to year the increase of insanity and to get into periodic panics over the necessity of building more hospitals, is not doing the work at the right spot and to the best advantage. But to achieve this we have to make proper provisions and see that the work is actually done. We are inevitably pushed to the conclusion that each hospital must be the center of organized work in its district with the help of the profession and all those who will take an efficient interest in public and individual help.

Your State Board has done excellent constructive work to improve the inner working of your institutions and to create the foundation for the culminating step of efficient management of the greater problem. Illinois is to-day in the lead, largely through the strenuous efforts of Miss Lathrop, in bringing about natural relations between the nursing forces of the state hospitals and the general hospitals. The eminently sound principles with which these relations have been put down are bound to do a great deal to bring the whole question of the care of the insane on a sound foundation. Such relations must spread in a wider public the information about the actual conditions to be dealt with, and with it confidence in the possibilities of doing a great deal of efficient and profitable work. In one of these points is the facilitation of the early care of the insane pending commitment. We physicians realize more and more that voluntary commitments and emergency commitments should be made use of much more extensively in order to prevent a patient, during a critical period of his life, passing through many hands; this can only have a bewildering effect upon him and really is at the bottom of many conditions erroneously supposed to be necessary parts of the disease. Most states of violence and extreme excitement are artefacts of mismanagement and ignorance of how to deal with patients. There is a crying need for humane and sane provisions all over the country. In the days when I was in Illinois, jury trials were obligatory to give a patient the benefit of care in hospitals. They then were made optional. Such a barbarous

usage is enough to distort the whole sense of the procedure, which should be protection and care of the patient by the state along the lines of quarantine principles, and not infliction of formalities which some escaped or insufficiently recovered patients have induced legislatures to inflict as a routine on many patients who do not want them, in order to have some chance to escape the, to them objectionable, limitation of freedom.

Dr. William L. Russell lately worked out and read at the Conference of the New York superintendents a committee report on the actual conditions of the insane pending commitment, a document which should be widely spread so that people may have a chance to realize the folly and insufficiency of the provisions which I am sure exist not in New York state alone. To this day, the jails are used extensively, in keeping with the tradition of court procedures. We must do more even, than merely create poorly equipped detention hospitals. This after all is only a shabby step from the horrible and disgraceful jail method. We should have a few nurses at least in every general hospital, who would be able to attend to any emergency, either in a hospital ward or an ordinary hospital room. Wherever there are medical schools, provision should be made especially to show the young physicians the nature of the emergencies and the proper ways of handling them, either among the general patients of a hospital or in special psychopathic divisions. Under no circumstances should a division for the reception of mental cases be made part of an almshouse, as occurs in certain communities, because this inevitably leads to a desire to keep cases cheaply, and to the perpetuation of wrong notions on the part of the public. Open the general hospitals and get general hospital nurses, or obtain nurses on emergency call from state hospitals! The wide call for psychopathic hospitals is not merely a sentimental cry to avoid the, unfortunately, existing notion of stigma; but it is a call to secure proper care for individuals who need it badly, a type of provision which every general hospital should be able to give at least transitorily.

To sum up then: 1. The care of the insane is to be organized so that care is given at as early a date as possible, that is, before the time where nowadays commitment is thought necessary.

2. Adequate provisions must be made pending the transfer to the specially organized hospitals.

3. The hospital must be properly organized with adequate treatment divisions where it is possible to become thoroughly acquainted with all the facts about the patient before his disappearance into the ordinary observation wards for a more lasting stay.

4. Even in the wards for the supposedly more chronic cases standards must be maintained that provide for the 25 per cent. or more recoverable cases whose disease lasts more than a year.

5. Adequate provisions must be made to become thoroughly acquainted with the outside conditions under which the disorder developed, and with the possibilities of an adjustment before the patient returns, together with the extension of such help as may be advantageous to the patient and to his friends on his return from the hospital.

6. General organization of work must be carried out in the locality, according to its needs, among the various types of the community, not only with regard to alcoholism and the spreading of syphilis, but also with regard to healthy methods of living generally; also possibilities of keeping the mind balanced with a due share of recreation and rest, and satisfaction with the returns of everyday toil.

This and nothing short of this, is the task for the care of the insane, as we understand it to-day. There is the problem! How can a state solve it?

To be equal to this task it is necessary to co-ordinate the forces properly. The state consists of fairly definite hospital districts. The hospital must make it possible for the superintendent to be the organizer of the work not only in the business and medical arrangements of the hospital, but really in the whole activity of the district. Only a man of that capacity is worthy to be superintendent of a hospital for the insane. To make it possible he must have a medical staff capable of similar aspirations and adequately trained to meet the emergencies. In this respect the co-ordination of the hospitals into a state unit makes possible the working of a central institute which is to be not only a place of research, but the place of training and equipment of the physicians for the special work until enough of the medical schools are capable of providing adequate courses for all physicians.

The central institute must help each individual hospital to a complete organization of its work, not in buying laboratory outfits to be stored away and covered with dust, but to meet the demands of the day. When I first came to Kankakee there positively was less medical equipment available than I should personally have ventured to depend on to go into general practice--and all that in a hospital for 2,000 patients, with a corps of physicians who were thus reduced to a standard of practice with which they should have been unfitted for competition with ordinary practice outside. Conditions began to change, and they have changed, and they will change more yet until standards are generally established and under control. The hospitals will rise to the ambition of being leaders in the distribution of information, the imitators of helpful activity and the contributors to research, and will be examples of the generally accepted axiom that only he who is progressive is capable of holding his own. To give the hospital physicians that standing and training your State Board has created the central institute.

If we ask ourselves why have the hospitals gone through so many fluctuations, we must admit that it is largely through fluctuations in the leadership, and the preposterous dependence on that big game which our people are not willing yet to abandon, the expansive and demoralizing game of politics in the sense of enrichment of the adherents to a party organization and jealousy about funds used with different principles. It is absolutely essential that the intelligent people of a state like Illinois band together to enforce with both parties the endorsement of its strong and efficient well-trying and well-supported central body, call it State Board of Charities, or whatever you like; a body which can save the

energies of the man in charge of our public institutions by giving them a chance to do their work instead of being pestered by unprincipled political interference.

The main issue seems to have been whether or not Illinois wants to give a chance to the best equipped persons it ever had to do any work at all. Regardless of the fact that the time of our officials is crowded with duties, and that uninformed investigators are wholly incompetent, legislative committees have been touring and interfering for weeks with the routine of hospitals where an investigation by trained persons should have been obtained, satisfying at the same time the questions of the legislature, and the anxious questions of the people, not with a mere volume of opinions, but with facts which can be used.

The organization of a leading and stable board must, of course, depend in part on local conditions, and, above all things, on the type of persons available for the task. My familiarity with the home-rule system of Massachusetts (not unlike the one in Scotland), and the centralized system in New York, tells me that they are good models worth studying and capable of adaptation. If well organized, the New York plan would appear to me best; but in some respects its principles can be combined with those prevailing in Massachusetts. The board of Iowa seems to be too closely limited to business interests. Such a system as that of New York, if it embraced also the care of the defectives and dependents outside of insanity, should in many essentials work more efficiently than other plans. With its three paid commissioners, if at least their duties are clearly assigned, with several deputy physicians for medical inspectors, and at least one business doctor (to quote W. H. Allen's efficient democracy) to look out for efficiency in the business departments, with one or more persons competent to investigate the facts in complaints about the nursing or local blunders in the care pending commitment, with a capable general secretary, a competent statistician, and a central institute of instruction and research, any state could have an ideal organization.

In addition, one might well consider having some non-paid commissioners, and a check and balance attained by a body like the State Association on Mental Hygiene (see C. W. Beers, "A Mind That Found Itself"). The chief point is that each hospital should unite those fit to take an interest in the after-care and prophylaxis movements. The district associations will be the agencies of most fundamental activity.

There is an immense amount of work to be done and there is no use in trying to do it unless the working force and the task are decently balanced. The state loses annually large sums through supposed economy on account of the utter inefficiency of what is attempted, and in our special field on account of the fact that most that is being done is—and we have reasons to be proud of that—to make the hospitals attractive so that larger numbers of patients resort to them, whereas, practically nothing is done to make the work thoroughly efficient by reaching at the same time the source of the evil.

The financial solution of the problem is a task for the student of administrative life and economy of the state. My claim is that an effort should be made to get away from the everlasting patchwork policy and lowering of per capita cost. Just as we take a general census of the population every ten years, and as we take our inventory in our business enterprises, so we should collect at least every five years the facts concerning the whole problem of the defective, the demands on the system, and the estimates of the cost of various modes of solving the problem. unprejudiced by a fixed sum such as the legislative committees are often forced to start from. With the help of the annual or bi-annual reports and some additional work, special committees, composed of competent workers from the state system and from universities and business concerns, should review what is done in the state and elsewhere so that recommendations can go before the intelligent people and become axioms which no political party can neglect.

There is no doubt that the introduction of civil service principles has been a first step away from party régime. But it is only a first step. The less regulations and the more reliance on the integrity and the trained judgment as to who is wanted, the better it is for the hospitals. Do not limit yourselves to your state for supply; do not think that the civil service creates the candidates. Those who need them have to look them up. Civil service at its best is simply a control of normal competition, but it should not become a blocking of it nor a protection of poor employés and a creation of false positions of preference.

At no time has the problem of the insane had a more favorable outlook than to-day. More and more people realize that there is something to be done. More and more agencies are being created which can become helps in the guidance of movements. The problems of the insane must become a problem of the mental health of our community. It is not only that which belongs to the asylum, as the old phrase used to be, but it is any mental unsoundness that we have to dread as much as anything that our Boards of Health are fighting against. It has taken centuries to disclose the possibilities and responsibilities in this direction. There is a wave of a spirit of responsibility going over our country again after a period of uncertain groping and surrender of the over-rigid New England conscience and of the stern sense of duty, and nothing but duty. Let us not forget that soundness of mind is the first issue of the success of a nation, and let us see that our nation becomes the leader in systematized efforts in efficient prophylaxis. Let us shape the hospitals for the insane so that the experience collected there gets among the profession and the people and that the untold misery of disease may be balanced by our minding the lesson to our advantage, and to that of posterity.

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NOVEMBER, 1908.

STATE BOARD OF CHARITIES AGAIN ENDORSED.

Perhaps the most significant feature to readers of THE JOURNAL of the recent State Conference of Charities at Rock Island was the large part of the six sessions devoted to medical subjects. Twelve of the twenty-four papers on the program, or 50 per cent., either were distinctly medical in tone or gave partial attention to topics of concern to physicians. This shows the conference recognizes the value of expert advice and seeks it freely regarding charity service that has medical adjuncts. And this is true of the method of the conference in all its times of activity. It hunts out facts. It acts on facts. Hence, it has climbed to a position of distinct confidence among the people of the state, a confidence deep rooted because the organization is non-partisan and non-sectarian. Its sole aim is to improve the public and private charity service and the public correctional service.

In view of the recent political investigation of our state charitable institutions, with all its beating of tom toms and burning of red fire, it is a novel and refreshing experience to see these institutions through the eyes of an alert, expert, non-resident physician. We refer to Dr. Adolph Meyer, formerly of Kankakee Hospital, now director of the New

York State Pathological Institute of State Hospitals for the Insane, professor-elect of psychiatry in Johns Hopkins University and director-elect of the clinic in psychiatry in Johns Hopkins Hospital under the large donation of Mr. Henry Phipps. Dr. Meyer would and could have been retained at Kankakee had not ward politics prevailed in our state government. How much Illinois has lost by the removal of Dr. Meyer can only be imagined by those acquainted with the man and his great talents.

Dr. Meyer, in the course of his conference address on "The Problem of the Public Care of the Insane," reprinted in full elsewhere in this issue of THE JOURNAL, said:

"As I come back to you I find a remarkable progress here as elsewhere; a strong and most energetic central board (of charities) and *hospitals rising vigorously from a kind of glacial period of political domination*; a state board of wonderful constructive capacity and with achievements which I feel *sure even hostile forces can never nip out*; a state board and hospitals which have given the other states many a valuable new thought and demonstrations of new possibilities. Here is fertile ground for a lasting achievement. There is still much to be done. Illinois has a grand opportunity. But in that she must uphold the best policy that has ever been shaped by her."

These statements are in harmony with editorials appearing in recent issues of THE JOURNAL.

The Illinois State Conference of Charities heartily agrees with Dr. Meyer, the expert, and differs from the cheap politicians who sought to retain a hold on the public charity service by condemning the bravest and most competent board of charities the state ever had. In resolutions, adopted unanimously, the conference declares its sentiments as follows:

Resolved, That the Thirteenth Annual Conference of the Illinois State Charities indorse the excellent work and approve of the program which was carried out by and contemplated for future service of the Illinois State Board of Charities; and further, that we sincerely indorse the foresight and judgment of Governor Charles S. Deneen in appointing this non-partisan, earnest and expert state board of charities.

Resolved, That we respectfully petition the governor of the state of Illinois and the Forty-sixth General Assembly, soon to convene, that the work of improving existing state charities be continued and that it be further expanded so as to include the establishment of a state colony for epileptics, a state sanitarium for the treatment of tuberculosis, and that improved and modern facilities be created for the care of the feebleminded; that the work of the visitation of children be more ample, so that thorough supervision of this most important charity be not neglected; that we indorse and approve of the commission recently established for the purpose of improving the condition of the blind in Illinois, and that we respectfully urge a liberal, wise and needed aid to be given to this deserving movement.

As if to give additional emphasis to its endorsement of the State Board of Charities and its recognition of the medical profession, the conference elected as president Hon. William C. Graves, of Springfield, executive officer of the state board, and as secretary Dr. Frank P. Norbury, of Jacksonville, an efficient member of the Illinois State Medical Society. Mr. Graves is not a politician. He is devoted to the

administration of public charity. He is in close sympathy with the medical profession and has shown his friendship for medical advancement in and out of the state public charity service.

With Dr. J. W. Pettit as president of the Illinois State Medical Society and Mr. Graves as president of the Illinois State Conference of Charities, there is every reason to believe that these men will endeavor to assist each other in an honest, strenuous, practical endeavor before the coming legislature to improve the laws of Illinois in such fundamentals as are of common interest to the militant state societies they represent. They have an important service to perform.

THE JOURNAL feels that the medical profession and the general public have every reason to place confidence in Presidents Pettit and Graves and to stand solid as a rock at their backs during the trying session so near at hand.

QUESTIONS IN CHEMISTRY SUBMITTED TO APPLICANTS FOR LICENSE BY THE ILLINOIS STATE BOARD OF HEALTH.

Dr. Willis G. Tucker, professor of chemistry in the Albany Medical College, said to be a veteran teacher of chemistry in its relations to medicine and an educator of ripe experience, in the July number of the *Albany Medical Annals* reviewed the questions prepared for the examination of applicants for license by the Illinois State Board of Health, Oct. 23, 24, 25, 1907. The questions, five in number, were as follows:

1. What is valency?
2. What characteristic reaction would ozone or hydrogen dioxide have on potassium iodide?
3. Complete the formula (sic): $\text{Na}_2\text{SO}_4 + 2\text{C} + \text{CaCO}_3 =$.
4. What is formed by treating hydrochloric acid with manganese dioxide?
5. Complete this formula (sic): $\text{K}_2\text{O}_3 + 2\text{C} =$.

Dr. Tucker comments as follows: "I have been engaged in teaching chemistry in a medical school and elsewhere for over thirty years, and have no hesitation in saying that this paper is entirely inadequate and absolutely worthless as a test of a man's knowledge of chemistry as related to medicine and in determining his competency to practice medicine. Only two of the questions, the second and fourth, have any bearing upon medicine, and, while the fourth is simple enough, it is comparatively unimportant for the reason that chlorine is not ordinarily generated on a large scale in the manner specified. The first question might be retained if the number of topics had been greater, but to give so much weight to a matter like valency in a medical examination is entirely unjustifiable. The third question has to do with the chemical changes taking place in the manufacture of soda ash by the old process, and, while proper enough in its place, is of no more interest or importance to the student or practitioner of medicine than the canals of Mars. The last question assumes

the existence of an oxide of potassium that I never heard of and which has, I believe, no existence. The examiner had in mind the reaction taking place in the manufacture of metallic potassium, which I conceive to be a procedure as far removed from everything medical as the manufacture of furniture polish or shoe blacking. This paper may be objected to on the lawyer's grounds—that three-fifths of the questions are incompetent, immaterial and irrelevant. The possession of such information proves nothing as to medical competency, and the lack of it should be allowed to debar no man from securing his license. I doubt whether one member in ten on our state boards, save perhaps the examiners in chemistry, could get 40 per cent. on such a paper as this."

The editor of the *New York Medical Journal*, in the issue of August 1, says: "We agree entirely with Dr. Tucker in his strictures, and we are also of his opinion when he says that no medical school could fit a man to pass such an examination unless, indeed, it wasted time that ought to be devoted to really medical instruction. Dr. Tucker thinks that many state examining boards are improperly constituted, that unfit persons are selected as their members, and he would have them made up of those who have had experience in medical teaching. We would add, in medical practice also. Evidently the average state examination is no trustworthy criterion of a candidate's title to the license to practice."

In the *New York Medical Journal*, Sept. 5, 1908, Dr. Egan appears with a letter with a confession that Illinois is the great state criticised by Dr. Tucker. Unfortunately the letters of Dr. Egan and the answer thereto by Dr. Tucker in the October 17 issue of the *New York Medical Journal* are too long to be quoted in full in our columns. We simply call attention to this discussion in order that our members may look up and read the letters.

SURGEON AND GENERAL PRACTITIONER.

We have received and print in this issue of THE JOURNAL two communications from medical men in different parts of the state which have a bearing on this important subject. From a number of different sources we have intimations that this is a subject receiving a great deal of consideration, and it is well known that certain abuses have arisen which are not creditable to the good name of the medical profession. We trust, therefore, that these articles will be read by all of our readers and that we shall have in the future a further discussion of this subject. A free and fair discussion of this problem will, we hope, enable the practitioners of Illinois to come to some reasonable conclusions on the subject.

CHICAGO MEDICAL INSTITUTES.

An important case was recently decided in the United States Circuit Court of Appeals, which sustained the findings of the lower court against one Edward R. Hibbard, of Oak Park, Ill. This man will spend two

years in the Chicago House of Correction, besides paying a fine and the costs of the prosecution of his case. It is hoped that the prosecution and conviction of this character will do much to call attention to the work of institutes and so-called specialists in many of the larger cities of the state. These people have transgressed the laws of God and man without let or hindrance for so many years that the time has come when a change is imperative. Full details of the case in question are to be found in the *Journal of the American Medical Association* of Oct. 17, 1908, on page 1330, and they should be read by every member of the Illinois State Medical Society desirous of bringing about a better condition of affairs in the commonwealth.

BARGAIN COUNTER SURGERY.

The following advertisement appears in the Pawnee, Sangamon County, Ill., *Herald* and is worthy of note as an evidence of the tendency of the times to bring medicine and surgery on a par with department store methods. Of course comments on the appearance of such advertisements in the secular press are unnecessary:

I Cure Rupture

AND

PILES

In One Treatment

NO { **KNIFE
TRUSS
PAIN**

WITHOUT LOSS OF TIME

Testimonials Furnished

SPECIAL PRICE

Until APRIL FIRST, 1909

\$25.00

Write or call on

S. L. REEFY, M. D.
Edinburg, Ill.

THE COUNTY MEDICAL SOCIETY.

In the August issue of the *Southern California Practitioner* is to be found a most excellent article by Dr. John W. Flinn, of Prescott, Arizona, on the subject "The County Medical Society." The author gives as his reason for choosing this subject in the annual essay before the Arizona Medical Association, "that in his opinion this is the one of

all subjects which most vitally concerns the members of the medical profession of to-day." To substantiate this statement the author calls attention to the amazing progress which has obtained in the industrial world because of organization. The rise of life insurance medical fees is mentioned in this connection and the author further states: "Gentlemen, show me a medical profession well organized and I will show you a power which in twenty-five years will shake the strongholds of disease to their very foundation stones."

"The first benefit of the county medical society that is of importance is that it enables the medical men in each community to become acquainted. The encouragement of envies, jealousies and unfriendliness that have existed in the medical profession has been largely due to a lack of acquaintance between the individual physicians. It may be safely axiomated that no one man has a monopoly of all the virtues, any more than are all the vices combined in any one. Indeed, we are all very much on a level in this respect. The man of marked virtues is the man who dives headlong into vice; and the man who never makes a slip is not likely to accomplish any very great moral reform. Let us be broad minded enough to look at all the sides of a man's character, and then we will not be very apt to condemn many. But, you say, Doctor A. is a pure son-of-a-gun, and I know it! Very well. The strong probabilities are that he thinks the same of you, and he is just as likely to be right as you are. Get together and talk the matter over, and perhaps you will find out that you are both wrong. "There is so much that is bad in the best of us, and so much that is good in the worst of us, that it doesn't behoove any of us to talk about the rest of us."

The second benefit of the county medical society is that it leads to cooperation among the members of the profession. "Cooperation, as its derivation implies, means simply working together; what in ball parlance is called team work. The man who tries to practice medicine alone is making a great mistake. The field is so large and the interests involved are so varied and so many that no one man can keep in touch with them all without constant help from his fellows." He mentions a few methods of accomplishing cooperation: "(a) Men can cooperate in raising the level of professional decency in their community. (b) Men can cooperate in encouraging healthful consultations. (c) Men can cooperate in raising fees and insisting on a fair remuneration for medical services. (d) Men can cooperate in stamping out criminal operations in their community. The following resolutions passed by the Yavapai County Medical Society are self-explanatory and have certainly had a very beneficial effect. At the meeting of May 7, 1906, the following resolutions were unanimously adopted and the secretary instructed to send a copy to each member of the society:

WHEREAS, It is apparent that quite a number of criminal abortions have been performed in Prescott during the past few months, and

WHEREAS, Such practice is contrary to the spirit of our profession and the constitution of our society; therefore, be it

Resolved, (1) That any member of this society who shall persist in this criminal work shall be promptly expelled from membership; and (2) that this society

will, in the future, do all in its power to have criminal abortionists punished by law; and (3) that the secretary be instructed to mail a copy of the resolutions to each member of the society.

"At the regular meeting of the society held Dec. 14, 1907, the following resolutions were unanimously adopted:

WHEREAS, Any medical practitioner is very liable to be unjustly blamed for inducing abortion and miscarriage; and

WHEREAS, It is the sense of this society that no effort should be spared to keep the name of all physicians clean; therefore, be it

Resolved, That the members of this society agree to refuse to attend a case of abortion or miscarriage without a consultant, it being understood that in case of extreme hemorrhage or other conditions dangerous to life such temporary measures shall be necessary to maintain life until a consultant be secured.

"(c) Men can cooperate in securing public health legislation and in having competent medical men appointed as health officers."

The third benefit of the county medical society is to afford its members an opportunity for carrying out a systematic course of medical study. "Men will soon lose their first enthusiasm in matters medical if you do not continuously provide them with some tangible work. By the way, herein lies the secret of success in medical society management: 'Give each member something to do all the time.' In society matters as elsewhere, work is the great leaven that leavens the whole lump. Osler, in his masterly farewell address to the medical men of America says, that unity, peace and concord are what are especially to be desired and sought after in our profession. In another of his inimitable addresses he refers to work as being 'the master word in medicine,' and, gentlemen, this master word will do more than anything else to bring about that greatly-to-be-desired condition of unity, peace and concord in our societies and in the profession at large." The author closes his address by mentioning the postgraduate courses of study which are published in the *Journal of the American Medical Association*, and the benefit which may be derived from a systematic course of medical study.

The reasons quoted above from Dr. Flinn's address for the existence and maintenance of a county society are well worth our careful consideration. We may have heard these same arguments presented before, or others equally as good, but, as the man who puts a new breakfast food on the market everlastingly keeps the name of this all-to-be-desired cereal before the public, so we are sure that organization and its benefits must be taught and preached again, and then some more times, to keep its importance constantly in the minds of society members.

SPECIAL PRACTICE IN HOLLAND IS LUCRATIVE.

Marten Maartens, the popular Dutch author, in a recent English magazine article on the national life of Holland, makes the following statement: "The most lucrative profession is, of course, here as everywhere, medical specialism. The law is less productive than in most countries, for Dutch procedure is comparatively cheap. The medical professor with a vogue may earn anything he chooses."

Correspondence.

THE SURGEON AND THE GENERAL PRACTITIONER.

TO THE EDITOR.

LEBANON, ILL., Sept. 4, 1908.

My Dear Doctor:—In the two latest editions of your journal you have shown some disposition to give the general practitioner a chance to express himself on the question of fee division, medical graft, or whatever you may wish to call it. The surgeons have settled the whole thing, and evidently think it is settled for good. Truly they have used so many bad names that a self-respecting physician is afraid to express a different view. The surgeons are writers and have access to the columns of all medical journals. They are accustomed to writing for publication, and I have felt myself to be a fool to even in my mind take issue with them. However, they are not right. The present relation between surgeon and physician and surgeon and patient can not continue without great injury to the profession and to the people.

It must be admitted that there is some good in the regular members of the county and state society. If the majority of these are corrupt, then the profession is hopeless even with an incorruptible surgical body.

I want to suggest that you take a vote of these members on this question and then publish the result. The best questions I have seen sent out are those by Dr. Lanphear of St. Louis. Coming from a surgeon there may arise a doubt as to his sincerity, but from you those questions answered by your subscribers would cover the whole ground. I have said that this matter could not remain as it is without great injury to profession and public, and as part proof of this, and at the risk of being tedious, I am going to describe my own experience and the conditions in towns near me.

My position is the same as that of every other experienced and trustworthy practitioner. In the first place I never had a patient who wanted me to call a certain surgeon or any surgeon. No surgeon in the world could come into my town and operate on my patient unless I had advised it and insisted on it. I can recommend or reject a faker or a man of wide attainments and my judgment is final, on me rests the responsibility for the result of the operation and the size of the fee. If I allow a man to charge the price of a patient's home I am the one who suffers, so also if I bring in a brutal or drunken surgeon. The patient depends on me and shudders at the prospect of the surgeon's visit. I never yet had a consultation where the surgeon did not ask me what the patient could pay, and I have always noticed that they feel like they have earned about as much as the patient can rake up. In addition to that, most of my patients bring me the money to pay the surgeon. The patient depends on me to say if an operation is necessary. It is popularly believed that surgeons are going to cut, and the question of operation is left to me, for final decision to be made by me and the surgeon jointly, but never by the surgeon over my advice. The patient depends upon

me to see that too much or too little is not done. He depends upon me to see that he is not overcharged. The surgeon depends upon me to carry out an intelligent and faithful after-treatment, to safeguard his reputation, to collect his fees. Now, where do I come in? I have raised my fees $33\frac{1}{3}$ per cent., but that does not help me one bit when a surgeon can charge \$250 for two hours work and I charge \$1.50 per visit. To go back a year: One operation in which a surgeon was paid \$150 I attended the child three weeks and got \$57.00. The surgeon had to wait three months, I waited nine. Another surgeon's bill \$500, mine \$25; another surgeon's bill \$150, mine \$24; another surgeon's bill \$150, mine \$47; another surgeon's bill \$250, mine \$100; another surgeon's bill \$150, mine \$150, after three months' attention.

In another town this matter is arranged by a plan by which a surgeon of no reputation, and possibly no integrity, comes at any time of night, operates without questioning the diagnosis, and is paid by the local physician a fee of \$50.00 to \$100 cash. The local physician then charges as much as he can get out of the patient. How horrible for the patient and degrading for the profession! Yet how much better than my own method.

I know other physicians who will not have a surgeon except when forced to, and that means not at all. I know physicians with large practices who do not have one surgical operation in five years. You can't blame them. Nobody can guess what a strange surgeon will say or do, and these things can only be done best for the patient where there is a close business and friendly relation between physician and surgeon. When this is so the busy physician soon learns from the studious and leisurely surgeon that it is safer for the patient to open his belly after a mule kick or to remove his gall bladder or appendix, to sew up the uterus, etc., and thus they work together for the best interests of humanity. This question ought to be settled by the best men of the profession, and not by the worst. There is not any use to expect any interest from the city physicians, because they work in cliques and the surgeon reciprocates with them in one way or another.

Just one thought more, and that is with regard to secrecy. Patients are not interested in what division of fees is made, and if a lump sum were charged for all services, no physician would object to making public, if necessary, his share of it were it an equitable division. I would not for the world give data of this sort which would seem to reflect on my friends, the surgeons. It is the system I object to and not the individual. I could not practice without the aid of my professional brethren. My letter is written because of your invitation.

Yours very respectfully,

J. H. FULGHAM, M.D.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

September Meeting.

The September meeting of the Adams County Medical Society took the form of a clinic conducted by Dr. John Lincoln Porter, of Chicago, who spent the time from 8 until 1 o'clock seeing and examining patients assembled in Blessing Hospital. About 20 cases of all varieties of orthopedic deformity and paralysis were demonstrated. He did an osteoclasis on a case of genu varum, and also operated on a case of hip-joint disease by the rapid method, whereby extension and abduction were obtained at once. There was an attendance of some 37 physicians both at the clinic and at the scientific meeting which followed the luncheon at the Hotel Newcomb. Dr. Porter gave a masterly and authoritative address on "Tuberculosis of Bone Structures," with particular reference to the hip and spine. He gave the newer treatment of such lesions by the Beck bismuth injection, and his thorough presentation of the subject was most interesting and instructive. At the conclusion of the address a most hearty vote of thanks was given the distinguished guest, who has become a favorite with the profession of this part of the state.

Dr. W. W. Kuntz, of Liberty, Ill., was elected to membership by a unanimous ballot.

C. A. WELLS, Secretary.

October Meeting.

The Adams County Branch met in regular monthly session October 12, in the Elks' Club Rooms, with Dr. J. B. Shawgo in the chair. Others present were: Drs. Robbins, Brenner, Lierle, Shawgo, Kirk, Erierson, Bloomer, Gilliland, Riee, Blikhan, Christie, Sr. and Jr., Pendleton, Gabriel, Knox, Williams, W. W. Harrison, Meyer, Pfeiffer, Ashton, Montgomery, Haxel, Groves, Werner and Wells, also Dr. D. H. Riee, of Colorado Springs, and Dr. Bearman, of Quincy. The routine business was then transacted, after which the communication from the Board of Public Instruction of the A. M. A. was then taken up. The society heartily approved of the plan to supply instruction to the public through lectures by medical men, and the matter was, on motion, left to the Program Committee to investigate the plan and report. Luncheon was served at the Hotel Newcomb, after which Dr. F. M. Pendleton addressed the society on "Purulent Conjunctivitis," giving a concise and scientific treatment of this most important affection of the eye. The large number of general practitioners present were most thoroughly interested and instructed by the paper. Dr. L. H. A. Nickerson gave a clinical report of a case of intratracheal growth which occurred in a subject 65 years old. A postmortem specimen of the trachea and larynx was shown, in which a low tracheotomy was done without relief of the dyspnea and stridulous breathing, since the growth was found about 2½ inches below. A report from the State Laboratory showed tubercle bacilli in a specimen of sputum sent from this case. The opinion of those present was that the growth was carcinomatous, but as yet no section had been examined microscopically.

C. A. WELLS, Secretary.

CLARK COUNTY.

The Clark County Medical Society met at Dr. Hall's office, Westfield, Ill., Oct. 7, 1908, at 2 p. m. Members present: Bradley, Duncan, Ryerson, Anderson, Johnson, Hall, S. W. Weir, Burnside, Mitchell, L. J. Weir. Visitor: Dr. Hinkley. Dr. E. M. Duncan presented a paper on "Acute Intestinal Indigestion." The sub-

ject was discussed by all present. Dr. S. W. Weir quizzed upon "The Etiology and Pathology of Acute Gastro-Intestinal Intoxication." A discussion followed by several members present. Dr. Joseph Hall presented "Cholera-Infantum" in a systematic, thorough manner. Time would not permit of discussion. The program committee offered the following, which was by common consent adopted, and on motion and second the secretary was instructed to have same printed and sent to each member.

Program for Six Months—Place of Meeting, Marshall.

November, 1908.—Anatomy of Liver and Gall Bladder, Anderson; Physiology of Liver, R. H. Bradley; Cholecystitis, W. W. Bruce.

December, 1908.—Cholelithiasis, (1) Chemistry of Bile, (2) Etiology, Symptoms and Treatment, Ryerson; Carcinoma of Liver, Symptoms, Diagnosis and Treatment, E. M. Duncan.

January, 1909.—Anatomy and Physiology of Kidneys, R. A. Mitchell; Acute Nephritis, Symptoms, (1) Albuminuria—Prognosis, (2) Uremia, Treatment, G. T. Rowland.

February, 1909.—Demonstration of Complete Analysis of Urine, S. W. Weir; Chronic Nephritis, (1) Parenchymatous, (2) Interstitial, G. W. Prewett; Differential Diagnosis of Acute and Chronic Nephritis, H. Y. McCullough.

March, 1909.—Catarrhal Pneumonia, Etiology, Pathological Anatomy, Symptoms and Physical Signs, L. A. Burnside; Croupous Pneumonia, Etiology, Pathological Anatomy, Symptoms and Physical Signs, W. W. Bruce; Treatment of Pneumonia, R. H. Bradley.

April, 1909.—Anatomy of Eye and Adjacent Structures, L. H. Johnson; Diseases of Eyeball, Including Refraction, L. J. Weir; Conjunctivitis, Catarrhal, Purulent, Joseph Hall.

L. J. WEIR, Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held Oct. 14, 1908, with the President, Dr. A. C. Cotton, in the chair.

"The Cutaneous and Conjunctival Tuberculin Reaction in Tuberculosis," by Dr. Freiherr Clemens von Pirquet.

"Artificial Immunization in Human Tuberculosis," by Dr. J. Denys.

Adjourned.

ENGLEWOOD BRANCH.

At the last meeting of the Englewood Branch, Oct. 6, 1908, a very large and enthusiastic audience listened to what was considered by all present to be one of the most interesting, if not the best, program ever given by the Society. Several very interesting clinical cases were exhibited, which were the subject of discussion. J. F. Hultgen, the principal essayist of the evening, was on hand promptly with a complete outfit of charts, photographs, microscopical slides, microscopes and pathological specimens, which he used in the elucidation of the subject. In his perfectly characteristic manner, he proceeded to give the Society a complete and comprehensive outline of the world's work up to date with reference to the differential diagnosis of acute and subacute meningeal infections. Dr. Hultgen has devoted a large part of his time for the last three years in the study of the blood. The Society was very much pleased and instructed by his classifications of the blood findings in meningeal infections. These served to impress the Society with the salient facts pertaining to differential diagnosis. Dr. Hultgen was very enthusiastic with regard to the use of the lumbar puncture as a means of rapid differential diagnosis early in the disease, stating that at the time when the diagnosis was of the greatest moment the clinical findings frequently failed completely.

E. A. Streich discussed the treatment of meningeal infections by first showing a patient treated by repeated lumbar punctures and injections of Flexner's serum. That the patient exhibited had true sporadic cerebrospinal meningitis was shown

by bacteriological examination. Both Dr. Hultgen and Dr. Streich were much impressed with the wonderful effects following the injection of Flexner's serum. Isaac A. Abt, who kindly consented to visit the branch and open the discussion, brought out a number of interesting points in the discussion of the papers. A. P. Horwitz discussed "Eye Findings" in meningeal infections, after which the discussion was closed by the essayists.

While the Englewood Branch holds meetings all during the summer, we consider last Tuesday night's meeting as the opening meeting of the year, and the large attendance proved very gratifying to the officers. The Secretary desires to announce the following program for the November meeting:

"The Diagnosis and Treatment of Bone Lesions" (exclusive of fractures), J. P. Webster. The discussion will be opened by Emil Beck. William H. Bohart will also read a paper on some of the newer methods in the treatment of surgical infections. A cordial and fraternal invitation is extended to every doctor who is interested in the science of medicine to visit the Englewood Branch, which meets at the Englewood Hospital, Sixtieth and Green Streets, on the first Tuesday night of each month at 9 p. m. sharp.

Clinical cases will always be welcome and every courtesy will be extended both patient and doctor by the officers of the Society and by the hospital management.

We try to make this part of the program as interesting as possible. Therefore, Doctor, you are cordially invited to bring in any instructive cases and thereby add to the common knowledge.

C. HUBART LOVEWELL, Secretary.

ADDISON'S DISEASE.

CASE REPORTED BY P. C. BOOMER.

Miss F., aged 28. Four years ago began to suffer from cerebellar pain and backache in lumber region. Three years ago brown spot appeared on right malar region which spread over entire body in six months, knuckles and lips first. Mucous membranes also maculed. Menstrual flow diminished and interrupted, fell into asthenic state and suffered with rheumatism and sciatica. Patient has never had severe illness or injury to which this condition can be related or traced. The tuberculin test by injection is negative. During the past year there has been considerable improvement from the use of suprarenal gland of which the equivalent of one or two have been taken daily. (From sheep.) There are now some fugitive pains and ringing in the ears, also cerebral disturbances which cause imaginary conversations and the presence of animals and persons all with sinister intent. Menstruation is regular but scanty, feels generally better, stronger and happier and is really improving physically. The pigmentation seems to be fading on the forehead; the impression is that the whole skin is distinctly lighter than six months ago.

CASE OF FATAL HEMORRHAGE FROM THE LIVER.

LUTHER JAMES OSGOOD, M.D., AND G. I. HAGAN, M.D., CHICAGO.

Mr. H., seen for the first time February 15, at 10 p. m. Died next day at 10 a. m., about sixteen hours after first taken ill, which was about 6:30 p. m. of the evening when first seen.

History.—On this evening at about 6 o'clock he ate supper, part of which was canned salmon and canned tomato soup. Shortly after supper he was seized with pain in the epigastric region and a desire to evacuate the bowels. This was not unusual to him, as he had often experienced this after eating, and had always been guarded against eating solid food, which seemed to aggravate these attacks, for a long time he had lived on soft and liquid food mainly. On this occasion he went to the bathroom, had a large bowel movement and vomited the entire meal he had just eaten. Following the vomiting his pain became much more intense. A physician sent for, gave him some anodyne for the pain. But it became more severe. Not being able to secure the doctor again later in the evening, I was called and saw the patient at about 10 o'clock.

Patient a young man of 26 years, six feet in height, well nourished, weight

about 170 pounds. He was restless and evidently in much pain in his stomach. No more vomiting. Pulse 84, temperature 99, respiration 36. Head and chest, negative. No history of venereal or renal trouble. Not anything important from the abdomen except as mentioned, the pains after eating solid food or a large meal. The abdomen above the level of the umbilicus was in state of boardlike rigidity. Very tender over the epigastric region and relative dullness over the left hypochondriac region a few inches below the rib margin. The right and left lower quadrants were negative. It seemed impossible to make out just what the illness was. But acute gastritis seemed the most plausible. The pain was continuous in character. He was given a hypodermic of morphin and atropin, which soon eased him so he slept till 1 a. m. when the pain woke him. He got up and went to the bathroom again to move the bowels. While there he had great pain and suddenly collapsed. He was taken to bed. When seen again he was in state of shock. Pulse small and thready, about 160; respiration shallow and temperature subnormal, body cold and clammy. At this time a tumor mass could be felt in the epigastrium to the left. He was too far gone to intelligently answer questions, and was restless. He died at 10 a. m.

That afternoon a postmortem was held by Dr. L. J. Osgood. A large quantity of blood was found free in the abdominal cavity. A large solid tumor occupied the lower lobe of the liver. The liver margin was about four finger breadths below the ensiform. The liver structure stretched over it in places no more than a quarter of an inch in thickness. The left border of the left lobe was ruptured from the hemorrhage pressure. The stomach had an oblique position with the pyloric end pointing toward the anterior superior spine of the ilium. It had the long narrow shape of an infantile stomach. The subsequent findings of the case were worked out by Dr. Osgood, who will present the gross specimen and microscopic findings. Fatal hemorrhage from the liver appears to be a very rare occurrence except when due to trauma. In this case the hemorrhage probably was due to rupture of vessels due to pressure necrosis. It was comparatively slow, taking from seven in the evening to one or two in the night before the rupture of the liver occurred, evidenced by the sudden shock and collapse after getting up.

PRELIMINARY REPORT OF POSTMORTEM ON MR. H.

Autopsy was held ten hours after death. A young man about 26 years old; 6 feet in height, and weighing 175 pounds. Body very well nourished. No edema of ankles or other parts. Rigor mortis present. Some slight bluish discolorization of dependent portions. Skin was very anemic where not discolored. No other findings on inspection.

Abdomen.—Normal amount of adipose tissue. Peritoneum smooth and shiny. Abdominal cavity contained 1500 c.c. of red serum and many small and large blood clots.

Liver Microscopically.—Below costal margin on the left side. Two small hard nodules which were connected with tumor mass on the under surface near esophageal incisure. They were composed of calcareous material. At extreme border of the left lobe the liver had ruptured, and from this point had come the blood found in the abdominal cavity. The tumor was covered almost over its entire surface with a thin layer of normal liver tissue, the tumor only being visible on the anterior lower surface. Right lobe and spigelian lobe were normal, no other tumors being found anywhere in liver substances.

Microscopically.—Tumor mass was made of large cells, some of which contained more than one nuclei. Also in stroma was seen many involuntary muscle fibers with characteristic cigar-shaped nuclei. Scattered throughout all sections were seen areas which had undergone calcareous degeneration. Some young connective tissue present. In some places you could see the large cells proliferating from the bile ducts. The cells were without doubt carcinoma cells and the starting point was from the bile ducts.

Diagnosis.—Primary carcinoma of the liver starting from the bile ducts. Gall-bladder and large ducts were normal.

Stomach.—Peculiar in shape. Cardiac end was normal but began to narrow at

the center and grew gradually smaller until pyloric end was reached. Cause: Pressure of tumor over the pyloric end of the stomach. No tumors or ulcers found.

Large and small intestines, normal; appendix, about ten centimeters long and free from adhesions; spleen, no enlargement; on section was very anemic; heart and aorta, no atheroma, no changes in heart muscles or valves; lungs, slight edema in lower lobes posterior; marked anemia; kidneys, normal in size, cut surface very anemic, no evidence of any pathological changes, ureters normal in size and number. Male genital organs were free from pathological changes; bones, no changes; nervous system, not posted.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held May 8, 1908.

A regular meeting was held May 8, 1908, with the President, Dr. A. J. Ochsner, in the Chair.

TRAUMATIC EPILEPSY.

Dr. Alex. Hugh Ferguson reported a case of traumatic epilepsy, in which he obtained a favorable result from operative intervention.

Dr. D. W. Graham said that many of these cases are followed by a period of apparent recovery after operation, then recurrence takes place. Some of these cases apparently recover permanently, although the lesion found at the operation was not sufficient to account for the symptoms and for the manifestations. While the case reported by Dr. Ferguson seems to present a good basis for the claim of having been cured, yet we are not certain the patient will be permanently cured by the operation. Regarding hernia of the brain, it is his understanding that we do not have hernia cerebri unless there is infection.

Dr. Julius Grinker does not agree with Dr. Graham that unless there be infection there can not be hernia cerebri. He would expect hernia in any brain deprived of its bony and dural coverings.

Dr. E. J. Senn quoted Dr. W. W. Keen as saying that it is impossible to have a hernia cerebri without infection.

Dr. D. A. K. Steele thinks that possibly in the case of Dr. Ferguson there was an old or latent infection which did not manifest itself on the surface of the brain, but was a deeper infection because before the eventual recovery of the young man there was a discharge of turbid fluid and subsequently of pus. In all cases of hernia cerebri he has seen there has been infection.

Dr. Ferguson, in closing, said he thinks every surgeon teaches that there are two kinds of hernia cerebri, one, which is due to the brain tissue protruding in the direction of least resistance, when there is a destruction of brain tissue, as he found it in a recent case treated aseptically. There was no infection in that case. There was no meningitis. There was nothing to indicate an infection. There was no elevation of temperature afterwards.

PAPILLOMA OF BOTII OVARIES.

Dr. Alex. Hugh Ferguson recounted the details of this case and described the operation performed.

Dr. Daniel N. Eisendrath said there is one step in Dr. Ferguson's treatment which he believes is to be commended, and that is preliminary drainage by means of a capillary drain thus gradually relieving the intraabdominal tension. The sudden withdrawal of large quantities of fluid from the abdomen during operation is at times a source of considerable shock and sometimes a very vital factor in determining the outcome.

Dr. A. J. Ochsner pointed out that in these cases of papillomatous cyst of the ovary the recurrence is practically in the region of the broad ligaments, and that by removing the uterus, together with the ovaries and tubes, and grasping as far down the broad ligament as possible, without injuring the ureter, the secondary infection is obviated, following the removal of the growth, and that although there may be secondary implantations of the papilloma upon the sur-

face of the visceral peritoneum, the intestines, or parietal peritoneum, those implantations may be destroyed naturally, and there will not be any permanent secondary implantations.

CARCINOMA AND ADENOFIBROMA OF THE BREASTS.

Dr. Ferguson said that a short time ago he removed two breasts from a woman, 49 years of age. The right one he removed without going into the axilla, because, in his opinion, it was an innocent growth, being of eleven years' standing, and not giving any trouble except its size. It was an adenofibroma. In the left breast there was the retracted nipple, and this was a case of scirrhus of the breast with a typical history. The two conditions were present in the same woman—carcinoma of one breast and adenofibroma of the other.

The two breasts were demonstrated by Dr. Fred C. Zapffe, Dr. Ferguson's assistant.

Dr. E. M. Brown exhibited a young man from whom he removed the hepatic flexure of the colon for carcinoma, Jan. 15, 1908. He also reported the case of Mrs. W., 53 years of age, upon whom he operated for the removal of a tumor of the submaxillary gland.

Dr. Samuel C. Plummer reported the following cases: Case of simultaneous Gritti-Stokes and Pirogoff amputation; case of double uterus, and a case of tumor of the spinal cord.

Regular Meeting, held June 12, 1908.

A regular meeting was held June 12, 1908, with the President, Dr. A. J. Ochsner, in the Chair.

Dr. Dean D. Lewis and Dr. E. S. Rosenow presented jointly a specimen of primary thrombophlebitis of the portal vein. Infarction of the intestines due to thrombosis of the mesenteric veins is not so very rare as a complication of some other diseases. The most common causes of secondary thrombosis are diseases of the liver accompanied by a descending thrombosis of the portal vein, general diseases—septicemia or cachexia—inflammatory and malignant disease of the systemic venous radicles anastomosing with those of the portal system. The case reported by these authors is rare, in that it is, strictly speaking, a primary thrombosis of the portal vein and its radicles, without any preceding involvement of the liver, intestines, or the anastomosing systemic radicles as far as could be determined by the history and autopsy.

Dr. Arthur Dean Bevan has never seen a case of this kind in his surgical work. Gangrene of the bowel from involvement of the blood supply is not very common, because there are now in the literature a number of cases reported, most of them being due either to an obstruction of the superior mesenteric artery, or the inferior mesenteric artery, or to obstruction of the superior or inferior mesenteric vein, and in many of these cases there has been some definite reason for the lesion.

Dr. E. Wyllys Andrews recalls a case of thrombosis and resulting gangrene of a segment of the intestine supplied by one of the mesenteric veins. Most of these cases have been diagnosed not before operation, but upon the operating table or at autopsy. He prided himself in one case for having made an early diagnosis of thrombosis and gangrene of the intestine. No operation was deemed possible. The patient died in a few hours and autopsy showed circulatory ileus. In another instance, a young woman in a neighboring city presented symptoms of intense ileus, and on operating he found what he had first supposed was gangrene of the entire small intestine. Upon further exploration he found considerable normal-looking intestine beyond the gangrenous part. He resected eleven and one-half feet of the black necrosed part. The patient bore the operation well, and lived about a week thereafter. It was almost an operative recovery, but the gangrene later extended and a new crisis occurred that cost her her life.

HERNIA.

Dr. E. Wyllys Andrews gave an illustrated talk on hernia in general, which was discussed by Drs. Ferguson, Bevan, Graham and Eisendrath.

FULTON COUNTY.

The eleventh annual meeting of the Fulton County Medical Society was held in the Churchill House in Canton, Oct. 6, and was called to order by President Blackstone. A fee bill for the county was reported by Dr. Sholes which was ordered printed and a copy mailed to each physician in the county. Secretary-treasurers' report showing a balance on hand of \$51.17 was read and adopted. The following officers were elected: President, Dr. A. C. Cluts, of Ellisville; vice-president, Dr. F. Robb, of Farmington; second vice-president, Dr. J. E. Coleman, of Canton; secretary-treasurer, Dr. D. S. Ray, of Cuba; necrologist, Dr. P. H. Stoops, of Ipava; membership committee, Dr. J. E. Sutton, of Canton; board of censors, Dr. J. W. Connelly, of Farmington; delegate, Dr. D. S. Ray, of Cuba; legislative committee, Dr. W. E. Shallenberger, of Canton.

The following new members were elected: Dr. I. L. Beaty, of Fairview; Dr. J. S. Barton, of Cuba; Dr. W. D. Nelson, of Canton; Dr. E. O. Onoin, of Sumnum; Dr. C. M. Wilmot, of Cuba; Dr. C. E. Axline, of Bryant.

Applications for membership were referred to membership committee. President Blackstone presented his annual address. Dr. Shallenberger gave some interesting points on some legal matters that are not generally correctly understood by the profession. Dr. Stoops gave a paper on the pathology and physiology of the parts concerned in typhoid fever, but as the rest of the symposium was not present discussion was postponed and the subject was set for the next meeting. The following members were present: Drs. Cluts, Blackstone, Wilmot, Ray, Stoops, Connelly, Sutton, Coleman, Boynton, Hays, Shallenberg, Richardson, Scholes, Simmons, Reagan and Kirby. Seventy-three dollars and fifty cents was collected as dues.

D. S. RAY, Secretary.

LAKE COUNTY.

The Lake County Medical Society met at The Gables in Waukegan, August 31, 1908. Dr. C. S. Bacon, of Chicago, addressed the meeting on "Puerperal Eclampsia." The following officers were elected for the ensuing year: President, J. C. Foley; vice-president, C. R. Galloway; secretary-treasurer, W. H. Watterson. The next meeting will be held at Parish House, Waukegan, October 29, at which meeting Dr. W. A. Evans, of Chicago, will give an address on "Tuberculosis," and other addresses will be given.

PERRY COUNTY.

The Perry County Medical Society held its meeting in Pinckneyville, Ill., September 23. Dr. F. P. Gillis, the president, was in the chair, but Dr. Smith, of Cutler, the Secretary, being absent, Dr. R. D. Pope, of DuQuoin, was appointed secretary *pro tem*. We were unprovided with a program for this meeting, but usually have some interesting clinical reports. Our county now has the same fee bill, and as a general thing, are very harmonious in our relations. Dr. Burch, lately settled in DuQuoin, was voted into the society. Drs. Oscar Mead, Roe, McCandless, Holdman and Templeman, of Pinckneyville, and Drs. Adles and Burch, of DuQuoin, are on the program for some interesting topics for our next meeting, Oct. 8, 1908.

R. D. POPE, Secretary *pro tem*.

MENARD COUNTY.

The Menard County Medical Society held its semi-annual meeting at Hotel Smoot, Petersburg, October 15. The officers elected were: President, Dr. Herman Rothert; vice-president, Dr. O. A. McIntosh; secretary-treasurer, Dr. Irving Newcomer. A banquet was served at which Dr. W. A. McIntosh presided as toastmaster, Mrs. J. W. Chaney and Mrs. F. P. Elridge responded to toasts.

MONTGOMERY COUNTY.

The Montgomery County Medical Society held its annual meeting in Litchfield, Wednesday, October 14, 1908. The sessions were held in the parlors of the St. Francis Hospital.

A clinic on rheumatism and heart disease was held by Dr. J. Ellsworth Smith, of St. Louis, assisted by Dr. Wm. Elder.

Officers for the ensuing year were elected as follows: President, Dr. P. M. Kelley, of Litchfield; vice-president, Dr. W. W. Douglas, of Hillsboro; secretary-treasurer, Dr. H. F. Bennett, of Litchfield.

VERMILION COUNTY.

The Vermilion County Medical Society met at Lake View Hospital at 8 p. m. Oct. 12, 1908. The board of censors reported favorably on the following names: C. W. Poole, E. L. Winslow, C. E. McCarty and O. P. Klotz. A ballot showed that E. L. Winslow, C. E. McCarty and O. P. Klotz were elected to membership. This was the second clinical meeting of the year and proved that such occasions are far more attractive than the usual set program of papers. Dr. E. B. Cooley presented a case of obscure diagnosis which at first presented marked indications of gallstone obstruction and later presented some typical indications of gastric malignancy, these all disappearing and at the present time leaving the diagnosis in doubt.

Dr. S. C. Glidden presented a case originally operated on for acute fulminating appendicitis, after which the wound healed kindly, all but a small point. A second operation was done to remove this small diseased area, which again refused to heal, and at a third operation some of the diseased tissue was sent to the Chicago Laboratory for examination, and the report showed that the tissues contained tubercle bacilli. The area still, after a year's time, has small fistulous tracts under the skin and there is some infiltration and tenderness.

On account of some members having to leave for a distance, recess was taken to partake of a delightful lunch provided by Miss Northwood, the superintendent, and her staff of nurses.

Dr. Cochran presented a specimen of fibroid uterus operated on with complete recovery, and Dr. Walton presented a specimen of large fibroid of the uterus complicated with pregnancy at about the fifth month. On account of the late hour, the discussion of the cases of Cooley and Glidden was postponed until the next meeting. Adjourned.

E. E. CLARK, Secretary.

NEWS OF THE STATE.

PERSONAL.

Dr. Otto T. Freer, Chicago, has gone to Europe.

Dr. Guy G. Dowdall, Clinton, has returned from Europe.

Dr. and Mrs. J. Earle Meloy, Lincoln, have returned from Europe.

Dr. and Mrs. A. H. Brumback, Chicago, have returned from Europe.

Drs. Oscar H. Kraft and David Monash, Chicago, have returned from Europe.

Dr. and Mrs. Walter H. Allport, Chicago, have returned from Europe.

Dr. and Mrs. Julian E. Hequemburg, Chicago, have returned from Europe.

Dr. M. L. Harris, Chicago, has returned from a three weeks' trip to Wyoming.

Dr. and Mrs. Albert M. Earel, Hoopeston, sailed from Quebec for Liverpool October 2.

Dr. J. A. Hoffman, Pesotum, Ill., left August 17 for Vienna, Austria, to take postgraduate work.

Dr. Emanuel J. Senn has resigned as assistant professor of surgery in Rush Medical College, Chicago.

Ben L. Reitman, M.D., started from Chicago October 14 for a trip to Australia and around the world.

Dr. Ignatz Lange, Chicago, has been elected president of the Anglo-American Medical Association of Vienna.

Dr. and Mrs. John B. Murphy and family, Chicago, arrived September 19 after spending the summer abroad.

Drs. C. B. and A. A. Saunders, 303 LaSalle Avenue, Chicago, are having an outing of three weeks in Colorado.

Dr. George Stacy has been appointed pathologist to the Illinois Central Hospital for the Insane, Jacksonville.

Dr. Maurice Altman, Springfield, will leave the city Nov. 1, 1908, to specialize on obstetrics under Prof. Joseph B. DeLee, Chicago.

Dr. Frank P. Boyd, of Redwood Falls, Minn., has taken a position as resident physician at Maplewood Sanatorium, Jacksonville, Ill.

Dr. Robert F. Hayes, Freeport, who has practiced medicine for more than fifty years in Stephenson County, has decided to retire from practice.

Dr. William D. Humphrey has succeeded Dr. John W. Huston, resigned, as city physician and president of the board of health of Virginia.

Dr. Brown Pusey has been appointed head professor in the department of ophthalmology in the Northwestern University Medical School, Chicago.

Dr. Henry B. Favill has been made a member of the commission to study the condition of employes of public and private institutions of Chicago.

Dr. H. A. Hollobusch, Rock Island, was elected president of the National Association of Railway Surgeons at the meeting held in Chicago Oct. 13 to 16, 1908.

Dr. G. S. Bolt, Herrick, has purchased property formerly belonging to the late Dr. G. W. Fringer, of Pana, and will move to that city to practice his profession.

Dr. W. F. Ernest, of Ashkum, Ill., has purchased thirty-two acres of land at Mt. Clemens, Mich., where he will erect a \$50,000 building to be used as a sanitarium.

Dr. Edwin A. Weimer, Pekin, has removed to Peoria and taken offices in the Observatory Building, where he will devote his time to the practice of surgery and gynecology.

Dr. J. L. Cass, Pawnee, Ill., has gone to Sullivan, where he will take the office and practice of Dr. F. P. Zerfass, who goes to Oxford, Ohio, where he has a position in a sanatorium.

Dr. Karl K. Koessler, formerly physician for internal medicine in the Vienna General Hospital, announces the opening of an office in Suite 802, Reliance Building, 100 State Street, Chicago.

Dr. George Michell, chief of staff of the Bartonville Insane Asylum, served as a delegate to represent the United States in the International Congress for the Relief of the Insane which was held in Vienna, Austria, Oct. 7 to 11, 1908.

Dr. Casey Wood has resigned the chair of ophthalmology and clinical ology, Northwestern University Medical School, Chicago, and Dr. Frank Allport has resigned the chair of ology and clinical ophthalmology in the same institution.

Dr. William C. Maxey, Hodges Park, Alexander County, who has been practicing for a number of years in Caldwell, Idaho, has been visiting at the old home and looking up a claim that he has for lieutenant's pay for twenty months' service in the Civil War.

Prof. O. Medin, of the Karolinska Institute, Stockholm, a delegate from Sweden to the International Congress on Tuberculosis, delivered a lecture October 6 at the Young Men's Christian Association auditorium, Chicago, on "Method and Prevention of Tuberculosis in Children."

Dr. Charles Adams, for more than twenty years a medical officer of the Illinois National Guard, and one of the pioneers in reorganizing the medical department that it might approximate as nearly as possible to the medical corps of the army, was appointed by the governor surgeon-general of the state October 9.

REMOVALS.

Dr. G. A. Estell has moved from Venedy to Jacob, Ill.

Dr. O. M. Carr, of Verona, has removed to St. Charles.

Dr. A. B. Moon has removed from Chicago to Belmont, Ill.

Dr. H. F. Bullard has removed from Cullom to Chenoa, Ill.

Dr. M. O. Holm has removed from Chicago to Zeland, Mich.

Dr. F. C. Vogt has removed from Springfield to Atterberry, Ill.

Dr. L. A. Barnside has removed from Martinsville to Marshall.

Dr. F. K. Camp, of Chicago, has removed to Oklahoma City, Okla.

Dr. M. L. Brookshire has removed from Pontiac to East St. Louis, Ill.

Dr. Olaf Nordwall has removed from Rockford, Ill., to Omaha, Neb.

Dr. John M. Hensch has removed from Chicago to Wetsonville, Colo.

Dr. C. E. Wright has removed from Shoals Mound to Vancouver, British Columbia.

Dr. Ben T. Roberts has removed from Morgan Park to 2041 Lexington Street, Chicago.

Dr. Anthony K. Rentkaus has removed from Grosselli, Lake County, Ind., to South Chicago, Ill.

NEWS ITEMS.

The University Hospital at Ogden Avenue and Lincoln and Congress Streets, Chicago, was opened for inspection October 1 from 8 to 10 p. m.

Seven residents of Springfield, recently bitten by a squirrel found to be suffering from rabies, are in Chicago for treatment at the Pasteur Institute.

The Health Department, Chicago, on September 5 is said to have instructed the police to close a private dispensary conducted by Mrs. Anna Breckler, 1151 North Robey Street.

Work has been begun on the new hospital to be erected by the Sisters of St. Francis on Ridge Avenue, Evanston, Ill. The building will be four stories in height, 55 by 180 feet, and will cost \$180,000.

S. S. Thompson, Chicago, a shoemaker, who claims to be a doctor of "mechano-therapathy," is said to have been fined \$100 by a jury in Judge Scovel's court September 19 on the charge of practicing medicine without a license.

Dr. Samuel R. Harwood, East St. Louis, is said to have pleaded guilty August 31 to a charge of failing to report a birth to the health commissioner in compliance with the city code, and to have been fined \$10 and costs.

By the will of the late David E. Fiske, of Chicago, the Home for Destitute Crippled Children and the Daily News Fresh Air Fund each received an annuity of \$500, and ultimately each institution will receive \$60,000 from the estate.

Dr. George Howe, of the Irene Howe Sanitarium, Chicago, is said to have been fined \$3 by Municipal Judge Gemmel for beating Dr. J. H. Barrow, 676 West Van Buren Street. According to report, Mrs. Barrow has circulated a story that Dr. Howe murdered babies at his sanitarium.

Dr. Bertha Van Hoosen, of Chicago, was given a verdict for \$700 against James Dempsey, of Manistee, Mich., September 23. The suit was based on services rendered the defendant's daughter, on whom an operation for appendicitis was performed. The father declined to pay the bill on the grounds of its being excessive.

The College of Physicians and Surgeons, the College of Medicine of the University of Illinois, Chicago, began its twenty-seventh annual course of instruction September 28. The opening exercises were held in the assembly hall of the college, Congress and Monroe Streets. Dr. Channing W. Barrett delivered the address.

Orthodox Jews in Chicago have organized an association to erect and maintain a Jewish hospital on the West Side. About \$10,000 has been already subscribed and a permanent building will be erected. The corporation is licensed as Miamonides Kosher Hospital Association, and it is proposed to carry out the orthodox Jewish dietary laws and habits in the institution.

Frank E. Wing, who is at present engaged in investigating health conditions, Pittsburg, was elected superintendent of the Chicago Tuberculosis Institute October 9 to succeed Alexander Wilson. S. C. Kingsley, superintendent of the Chicago Relief and Aid Society, was elected secretary, vice Ernest G. Bicknell, who has gone to New York to take charge of the American National Red Cross work.

The Owl Doctor.—A medical man in New York City has a new scheme. He practices at night only. He found so many night cases coming at the top of his office hours and visits wore him out, so he determined to save his energy for the night work, which paid best, anyway. He says he finds patients prefer having a doctor who is fresh and wide awake instead of one who is tired out after a day's work.

The \$600,000, or George Smith Memorial addition to St. Luke's Hospital, Chicago, was dedicated Oct. 18, 1908. The addition is said to be the most admirably equipped hospital in Chicago, is fire-proof, sound and dust-proof through the use of double doors and windows throughout. The elevators are provided with vestibules on each floor with double doors to shut out internal noises. It contains 127 private rooms furnished with lacquered brass beds and solid mahogany furniture in colonial pattern. A system for hydrotherapeutics has been installed; there is also a brine cooling system.

The State Conference of Charities was held in Rock Island October 10 to 13, inclusive. William H. C. Smith presided. Dr. Adolph Meyer, director of the New York State Pathologic Institute, and recently elected professor of psychiatry in Johns Hopkins University, spoke on the subject "How Shall the Problem of Public Care of the Insane Be Solved?" At the same session Dr. George A. Zeller, superintendent of the Illinois General Hospital for the Insane, South Bartonville, delivered an address on "Modern Treatment of the Epileptic and the Insane." Dr. William H. C. Smith, president of the State Conference of Charities, delivered an address on the evening of October 10 on "The History of the Care of the Feeble-minded in Illinois." The tuberculosis question also received prominent attention. Alexander Wilson, superintendent of the Chicago Bureau of Associated Charities, outlined a working tuberculosis program for Illinois, and Dr. James W. Pettit, head of the Ottawa Tent Colony, spoke on "The Local Versus the State Sanatorium for the Treatment of

Tuberculosis." On October 11 Prof. George W. Jones, superintendent of the Illinois State School for the Blind, Jacksonville, delivered an address on "The Duty of the State Toward the Blind."

One Antonio C. Jacobs, of Chicago, a graduate of Dearborn Medical College in 1904, has been on trial in Judge Gemmill's court in connection with a society known as the Home and Fireside Protective League, on a charge of obtaining \$500 from Mrs. Marie Stolzenau by false representations. Among the inducements offered by the league to obtain members were these: A person marrying after one year's membership was to receive \$500. A mother's benefit of \$500 if a baby is born after the parties to the marriage have been members for at least one year. For the birth of twins the benefit was to be increased 50 per cent.; for triplets, 100 per cent.; birth of quadruplets entitled the parents to \$2,500. Every tenth year of membership entitled the members to an anniversary benefit limited to \$1,000. On the death of a member in good standing the heirs were to receive a funeral benefit of \$500. Mrs. Stolzenau testified that Dr. Jacobs, as medical referee of the league, persuaded her to call upon Jules F. Koelling, the manager, and invest \$500 in the concern. Koelling, who was arrested on complaint of Mrs. Stolzenau's husband, was in court on a similar charge. His trial will follow that of Dr. Jacobs. According to the testimony of Mrs. Stolzenau, she was to receive \$500 worth of shares in another corporation called the Underwriters' Membership Agency, the president of which was W. C. Walker, a waiter in a South Side club.

It is of interest to read or hear the doctor described from the point of view of the layman and the lay press. The following editorial, which appeared in the *Chicago Evening Post*, October 2, discloses the good sentiment that still exists for the profession of medicine: "Seldom does any one arise to state the ease for the man of medicine, and when the occasional word of praise is heard humankind is apt to dismiss it with the reflection that the physician is paid for what he does, anyway. When the doctor effects a cure he is often suspected of having exaggerated the symptoms for his subsequent glorification, and when death is not to be denied he is blamed. The memory of his fees remains long after the good that he has done is forgotten. If the ordinary practitioner worked for praise he would be even more poorly paid than he is at present. Doubly interesting, then, because it is unusual as well as true, is Rudyard Kipling's tribute spoken yesterday in London to the men of the medical profession. 'All the world,' said Kipling, 'is divided into two classes—doctors and patients'—and he might have said the uncomplaining and the complaining. For the physician never complains; he toils early and late to alleviate suffering, he shatters his own health to restore the health of others. Night and day he is at the beck and call of a thoughtless people—'nobody will care whether you are in your bed, bath or at the theatre if any of the children of men has a pain or a hurt in him.' We would have a better appreciation of the benefits doctors bestow upon us if we could realize what the world would be without the protection of their knowledge. But for the physicians the cholera which is now held

in check in Russia and the Philippines and the still more dreaded bubonic plague would before now have swept around the world, leaving a terrible path of death and suffering where they had passed. The army of medicine fights the battles of the world more bravely and more successfully than all the soldiers and the sailors that we have."

MEDICAL SOCIETY NOTES.

The first meeting of the Council of the Chicago Medical Society was held Tuesday evening, Oct. 13, 1908.

On September 22 the Ottawa Medical Society held its first meeting for the fall and winter season. Dr. Channing Barrett, of Chicago, addressed the meeting.

At the annual meeting of the Evanston Branch of the Chicago Medical Society the following officers were elected: President, Dr. Stephen V. Balderston; secretary-treasurer, Dr. William C. Danforth; councilor, Dr. Ernest L. McEwen; alternate, Dr. George W. Boot.

The Rock Island County Medical Society held its monthly meeting at the Manufacturers Hotel Tuesday evening, October 13. Dinner was served and there was a program of the usual short talk and a general discussion followed. Some applicants for membership were voted upon.

C. P. Caldwell, Mortimer Frank, Charles Davison and J. H. Stowell have consented to assist the secretary in the securing and arranging of the program of the Chicago Medical Society for the coming season. They accept material for the meeting and will arrange for the presentation of such papers as may be offered to any of them.

The Illinois and Indiana Central District Medical Society held a meeting at the Hotel Harms, Rock Island, Ill., Oct. 8, 1908. The principal session was held in the evening and was well attended by physicians prominent in the tri-cities and other points. The meeting was the most important of several meetings to be held in Rock Island this winter, and the program was featured with excellent addresses. A banquet was arranged by those in charge. Dr. F. H. First, of Rock Island, is president of the society and the secretary is Dr. Young, of Geneseo.

The Chicago Medical Society held its first meeting in the fall season Wednesday evening, Oct. 14, 1908. Dr. A. C. Cotton, president, and Dr. M. Z. Albro, secretary. The following program was given: "The Cutaneous and Conjunctival Tuberculin Reaction in Tuberculosis," by Dr. Freiherr Clemens von Pirquet, privatdocent of the University of Vienna. "Artificial Immunization in Human Tuberculosis," by Dr. J. Denys, professor of pathological anatomy and director of the Institute of Bacteriology at the University of Louvain, Belgium. Dr. von Pirquet is the discoverer of the cutaneous reaction, and illustrated his lecture by models and charts. Dr. Denys has done pioneer work in the field of immunity in tuberculosis. His method of treating tuberculosis by means of the simple filtrate of bouillon cultures of tubercle bacilli has created

a good deal of interest and is employed by many of the best workers in this country. A large number attended.

Dr. J. W. Pettit, president of the Illinois State Medical Society, and Dr. A. C. Cotton, president of the Chicago Medical Society, were the guests of honor at a dinner given by the North Shore Branch of the Chicago Medical Society, held at the Bismarck Garden Oct. 6, 1908. Dr. Cotton addressed the society. Dr. Pettit gave a most interesting paper on tuberculosis. This paper was discussed by many of the members present. The meeting was the best attended in the history of the branch.

On September 15 the semi-annual meeting of the Knox County Medical Society was brought to a close with a banquet served at the Galesburg club-room. About sixty physicians and their wives and guests were present. Dr. Louis Becker, of Knoxville, was toastmaster. Several toasts were responded to and the program was complete with musical selections and readings.

The Council of the Illinois State Medical Society held a meeting at the call of the chairman, Dr. Carl E. Black, Oct. 10, 1908. The meeting was held at the Great Northern Hotel, Chicago. Part of the discussion is as follows: The new legislation desired by the Illinois State Dental Society was discussed by the Council and an effort to render such service as it can as an official body and by personal influence to assist the Illinois State Dental Society in securing the desired legislation. The secretary of the dental society was present and accepted the courtesies for the dental society and advised that they would be pleased to be of service to the Illinois Medical Society at any time they may wish to secure legislation for the betterment of the profession. The following is the legislation desired by the dental society:

NEW LEGISLATION DESIRED.

The Legislative Committee was authorized to ask for the following from the next Legislature:

1. An amendment to the dental law which will exempt dentists from jury duty.

2. An amendment which will enable our State Board of Dental Examiners to make arrangements with Examining Boards of other States having similar laws, by which Illinois practitioners may remove to such states and be granted licenses to practice without being examined; Illinois granting like privileges to practitioners of such states. This is the beginning of a plan by which it is hoped that before many years most of the State Boards will be in position to "exchange licenses."

3. Provision for the placing of an experienced dentist on the regular staff of each of the charitable institutions of the state. The condition of the teeth of the wards of these institutions is deplorable, and action is imperative.

There appears to be no question but that all dentists of Illinois, whether members of the Society or not, are in favor of all three of these measures, and there should be little difficulty in securing their passage if the men of the various districts will call on the nominees soon after the primaries and ask for their support.

The following officers and committees were elected by the Council of the Chicago Medical Society at its meeting held Oct. 13, 1908: The

term of C. B. Reed, trustee, having expired, J. A. Clark, of the Douglas Park Branch, was elected trustee to serve three years. J. P. Hepburn was elected to succeed himself as a member of the Membership Committee. Harold N. Moyer was elected to succeed himself as a member of the Medicolegal Committee. R. B. Preble's term as a member of the Ethical Relations Committee having expired, James E. Stubbs was elected to succeed him. J. Whalen's term as a member of the Public Relations Committee having expired, he was elected to succeed himself. C. S. Bacon's term as a member of the Committee on Criminal Abortions having expired, he was re-elected. The following were elected delegates to the Illinois State Medical Society: C. F. Lydston, E. M. Webster, Anna L. Dwyer, C. H. Miller, George F. Butler, Clarence W. Leigh, W. L. Noble, K. A. Zurawshi, J. V. Fowler, W. T. Meffors, O. S. Ormsby, James E. Stubbs, George Bell, D. R. Brower and Alice Conklin. The following were elected alternate delegates to the Illinois State Medical Society: George Weaver, Heman Spalding, Frederick Tice, C. B. King, M. H. Luken, C. J. Whalen, T. C. McGonagle, E. Cunat, R. Wheeler, F. Fischlin, A. Barr, C. I. Wynekoop, William Harsha, H. E. Almes and Hugo E. Betz.

MEETING OF COUNCIL OF ILLINOIS STATE MEDICAL SOCIETY.

Council met in regular session in Chicago Oct. 9, 1908, at the Great Northern Hotel. Convened at 10 a. m., with Chairman Black presiding. On roll call the following were present: Councilors Black, Percy, Newcomb, Hunt and Roane, President Pettit and Secretary Weis. The minutes of the previous meeting were read and ordered approved.

The secretary read a communication from Dr. Clarence A. Wells, secretary of the Adams County Medical Society. This was an official notification of the election of the Committee of Arrangements as follows: Drs. J. H. Rice, R. J. Christie, Jr., L. H. A. Nickerson, Clarence A. Wells, Kirk Shawgo, Joseph Robbins and Thomas B. Knox. It was moved and seconded that the notice be placed on file and the election ratified. Carried. The secretary read the report of the Committee of Arrangements, Peoria meeting, giving a balance of \$113.16, which was turned into the general treasury.

The secretary also read a letter from General Secretary George H. Simmons, embodying a resolution of thanks for the services of the Illinois State Medical Society during the American Medical Association meeting in Chicago. The same was referred to the next House of Delegates. Also a letter from the same embodying resolutions regarding advertisements appearing in *THE JOURNAL*, and it was suggested that Chairman Black correspond with the general secretary to discover what the other state journals are doing along this same line.

The secretary read a letter from Dr. A. C. Cotton, president of the Chicago Medical Society, regarding the question that the *ILLINOIS MEDICAL JOURNAL* is the official organ of the state and county societies. It was moved by Pettit and seconded by Percy that the secretary be instructed to look up the record on the question and communicate the same to Dr. Cotton.

The secretary read a letter from the Committee on Pharmacopeia of the American Medical Association in which was asked the appointment of three delegates to its next meeting or convention. It was moved and seconded and carried that President Pettit appoint three delegates to attend this convention.

The time set for a special order of business for the Medical Legislation Committee was 11:30, and Chairman Black presented a communication from the Illinois State Dental Association, that association asking our support to proposed legislation. Dr. Koch, secretary of the Illinois State Dental Association, being present, was invited to present the desires of that association and did so in a very able and concise statement.

Dr. L. C. Taylor, chairman of the Legislative Committee, was called upon, and he stated that he had no new projects in the way of legislation to offer at the present time, but made some suggestions on the line of preventing malicious and injurious legislation. He stated that it required as much of an effort, if not more, to prevent bad legislation than to obtain good. Dr. Fowler, of the same committee, being present, made a statement on similar lines.

It was moved by Dr. Pettit and seconded that the suggestions offered by the Illinois State Dental Association which have been under discussion and which have been endorsed by us, be published in *THE JOURNAL*. Carried.

Dr. Baum addressed the Council at considerable length on the proposed changes of the health laws. It was moved by Fowler and seconded by Hunt that the chairman of the Council call a special meeting in November or December, of the Council, the Legislative Committee and the Auxiliary Committee of the Legislative Committee, Committee on Public Policy, State Board of Charities and Illinois State Board of Health to meet in Chicago for a joint session to consider proposed needed legislation. Carried.

PUBLIC HEALTH.

Smallpox is reported from Spring Valley.

Kankakee reports six cases of diphtheria.

Gillespie is reported to have an epidemic of typhoid fever.

Scarlet fever and smallpox are reported to be epidemic at Taylorville.

Springfield reports seven cases of diphtheria and six cases of scarlet fever.

In the Spaulding Institute, Nauvoo, five cases of scarlet fever are reported.

An epidemic of diphtheria is feared at Waukegan, where several cases have been reported.

Because of the prevalence of diphtheria the public schools of Benld have been ordered closed.

The opening of the schools of Abingdon has been postponed on account of the prevalence of scarlet fever.

Saint Anne is threatened with an epidemic of diphtheria and the opening of school has been delayed one week on account of the prevalence of the disease.

Smallpox is reported at Pawnee. The public school has been closed, church services have been suspended and rigid quarantine regulations are being enforced.

The Girard Board of Health issued a proclamation, September 8, closing the schools and churches and prohibiting other public gatherings, owing to an epidemic of diphtheria.

Hinckley, with a population of 500, reports sixty-one cases of scarlet fever and diphtheria, and two of the patients are said to be physicians who are members of the board of health of the village.

During the last week 700 pupils of the Chicago public schools were barred from school, the result of examination by medical inspectors. Less than ten of this number had symptoms of contagious disease, but many had parasitic diseases.

In Chicago during the last seven weeks the seventy-five medical inspectors, detailed to instruct mothers in the proper care of infants during the hot weather, have visited 43,784 homes. The inspectors found 2,410 cases of illness and 24,702 unvaccinated persons.

On account of complaints made to inspectors of the Health Department of Chicago that the police were not giving sufficient support to the employes of the Health Department in enforcing quarantine in contagious diseases, a general order was issued October 9 by the chief of police, directing the commanding officers to instruct their men that the warning cards of the health department were not to be torn down, and also that infected children were to be kept off the street.

The Mayor and the Finance Committee of Chicago have authorized the Commissioner of Health to employ forty nurses to visit the schools and see that remedial measures recommended by the school medical inspectors are carried out. By making application of the needed treatment many of the children can be kept in school or returned to school at an earlier period than otherwise. Children afflicted with ringworm, pediculosis, scabies or impetigo can be kept in school if under proper treatment. In cases where parents neglect defective children, needing medical or surgical treatment, the nurses will interest themselves in their welfare. The nurses began work October 12.

The city of Evanston, Ill., through the acting Commissioner of Health, Dr. S. V. Balderston, furnishes the following review of its health condition during the summer months: Report of mortality from diarrheal diseases in Evanston during the months of June, July, August and September, comparing the years 1907 and 1908, including children up to 5 years of age:

June, July, August and September.	1907.	1908.
Total number of deaths in children up to five years of age.....	39	39
Deaths due to accidents, including still born.....	11	7
Deaths from acute infectious diseases.....	4	0
Deaths from diarrheal diseases and including those reported as due to malnutrition and inanition.....	11	7

It will be seen that the number of deaths from all causes enumerated is less for 1908. The total deaths from accidents and from acute infectious diseases for the summer of 1908, however, is 7, compared with 15 for 1907; excluding these we have as a total 23 for 1908 as compared with 24 for 1907. This leaves 7 deaths from diarrheal diseases in 1908 out of a total of 24 deaths. A study of these statistics would seem to show a considerable diminution in the total deaths in the summer of 1908 in children up to 5 years of age from all causes, and a marked reduction in the number of deaths from diarrheal diseases as compared with the total deaths of children of this age, even after excluding deaths from accidents, etc., in infectious diseases, which were greater in 1907. Personal observation and interviews with physicians during the past summer had led to the belief that the number of babies suffering from diarrheal diseases was above the average, but this does not seem to be borne out by the statistics given above, or if the number was great this year we must presume that the cases were milder than usual.

The Department of Health of Chicago, in its *Bulletin*, gives in brief the annual report of the health condition in Chicago during September: "Notwithstanding the fact that September, 1908, was the hottest on record for thirty-seven years, the daily mean being nearly 6 degrees above normal, the health of the people was remarkably good. The 2,318 deaths reported to the Bureau of Vital Statistics during the month yield a per annum rate of 13.00 for every 1,000 of the population, this being nearly 5 per cent. below the average for this month for the last ten years, more than 11 per cent. lower than the rate of the preceding month—August—and 9.6 per cent. lower than the record for September of last year. The important causes of death named in order of greatest contributions to the monthly total of 2,318 are as follows: Diarrheal diseases, 544; consumption, 252; violence—including suicide—171; heart diseases, 161; Bright's disease, 150; pneumonia, 136; cancer, 101; the four chief contagious diseases of children—diphtheria, scarlet fever, measles and whooping cough—82; the nervous diseases, 77; apoplexy, 52; typhoid fever, 42. As compared with September, 1907, the following important decreases are noted: From pneumonia there were 22 fewer deaths; the nervous diseases—including convulsions—57 fewer; the four chief contagious diseases of children, 16 less; cancer, 34 fewer; Bright's disease, 13 fewer, and from typhoid fever there were 10 fewer deaths. Similarly compared, the following increases are noted: Diarrheal diseases, 21 more deaths; consumption, 12 more, and suicides, 15 more. Although the temperature of the month was about the same as in August, the diarrheal disease deaths were 271 fewer, a decrease that is in great part due to the educational campaign conducted during the summer whereby mothers in the congested residence districts were instructed in the proper care of their babies during the hot weather. The reduction in the infant deaths—240—corresponds closely with the reduction in diarrheal disease deaths."

NEW INCORPORATIONS.

Guaranty Indemnity Company of Illinois, \$5,000; furnish medical attendance and medicine; C. W. Horn, E. C. Gibbs, E. G. Minnick.

Oakley Smith College of Naprapathy, Chicago; teach science of naprapathy; incorporators, R. J. Smith, R. B. Smith, H. McClellan Hess.

Daughters of Columbia Hospital Association, Chicago; provide free hospital service; incorporators, Catherine Bastian, Alice Kane, Edwin D. Peifer.

MARRIAGES.

L. W. FULTON, M.D., and Miss Elsie R. Fouche of New Berlin, Oct. 5, 1908.

J. HENRY DAVIS, M.D., and Miss Olive Gertrude Wilson, Carlinville, September 30.

JOHN AIMONE, M.D., Granville, Ill., to Miss Della Stringfellow of Chicago, recently.

C. H. LOCKHART, M.D., of Witt and Miss Roberta Blanche Short of Hillsboro, October 14.

SARA A. JANSEN, M.D., and Alister S. Langille, both of Chicago, at Albert Lea, Minn., September 9.

EVERETT J. BROWN, M.D., of Decatur and Miss Jane Herron Jack of Peoria, Thursday, October 8.

MOTT HUNTON ARNOLD, M.D., Paris, Ill., to Miss Grace Meriam Chapman of Siegel, Ill., September 16.

LUDWIG MANNHEIMER LOEB, M.D., Chicago, to Miss Minna Juliet Morgenthau at Far Rockaway, N. Y., September 14.

DEATHS.

MARTIN MATTER, M.D., 3137 Wabash Avenue, Chicago, on September 29, aged 58.

JOHN B. YOUNG, M.D., of Golconda, died at his residence in that city Oct. 6, 1908. Dr. Young was a graduate of Rush Medical College in 1876.

JOSEPH J. CROWE, M.D., Rush Medical College, 1893; of Chicago; died at the home of his father, September 14, of pulmonary tuberculosis, aged 40.

ADOLPH G. BECHTOLD, M.D., Missouri Medical College, St. Louis, 1890; died at his home in Freeburg, Ill., September 23, from cerebral hemorrhage, aged 42.

JOSEPH B. SCARBOROUGH (license, Illinois, years of practice, 1878), for forty-four years an eclectic practitioner, died at his home in Woodlawn, Ill., September 26, aged 60.

HENRY CLARENCE YOUNG, M.D., New York University, 1875; a veteran of the Civil War; died at his home in Flora, Ill., September 19, from cerebral hemorrhage, aged 53.

SAMUEL FIELD, M.D., of Hillsboro, aged 81 years. Dr. Field was the oldest practitioner in Hillsboro and was a graduate of the Homeopathic Medical College of St. Louis in 1860.

A. L. KELLAR, M.D., for fifty years a practicing physician in Sullivan County, died in California. Dr. Kellar was a graduate of the University of Louisville and began his practice in 1851.

FRANK W. GORDON, M.D., Hahnemann Medical College, Chicago, 1866; of Sterling, Ill., and for four years health officer of that city; acting assistant surgeon, U. S. Army, during the last year of the Civil War, died in the Augustana Hospital, Chicago, October 1, a week after a surgical operation, aged 71.

THOMAS CROSWELL, M.D., Bowdoin College, Brunswick, Maine, 1838; said to have been the oldest living graduate of the institution; an honorary member of the North Central Illinois Medical Association; died at the home of his daughter in Streator, Ill., October 6, aged 93.

GEORGE F. HEIDEMANN, M.D., Rush Medical College, 1863; assistant surgeon of the Fifty-eighth Illinois Volunteer Infantry during the Civil War; coroner of Du Page County for eight years; a member of the board of education of Elmhurst for sixteen years, and village treasurer; died at his home, September 29, aged 70.

SAMUEL J. BUMSTEAD, M.D., of Decatur, died September 19 at the home of his son, Dr. Charles Bumstead, of Monticello, Ill. While visiting in Connecticut Dr. Bumstead contracted pneumonia which caused his death. He had practiced for more than thirty years in Decatur, making a specialty of eye, ear, nose and throat diseases. He was a graduate of a homeopathic school in Philadelphia and afterward took an examination in 1863 by the famous Illinois Army Physicians, composed of Drs. Hosmer A. Johnson and John H. Rauch, who were organized to guarantee the attainments of medical men as physicians with the Illinois regiments during the war. Previous to this examination he had served as a private in the ranks and as a sergeant in the medical department. After his examination he was made an assistant surgeon with rank of first lieutenant. Dr. Bumstead was interested in all questions of civic improvement and his voice was heard in upholding what he believed to be the proper solution of these questions. He wielded a trenchant pen and, of course, encountered opposition, which he enjoyed. His wife and two sons survive him.

ILLINOIS STATE MEDICAL SOCIETY

MEDICO-LEGAL COMMITTEE.

EXECUTIVE COMMITTEE.

FROM ILLINOIS MEDICAL SOCIETY.

H. N. Mover, 103 State St., Chicago. Central 2751.	C. D. Pence, 859 Turner Ave., Chicago. Canal 1335.
W. L. Noble, 100 State St., Chicago.	M. L. Winstead, Wetaug, Ill.
E. W. Weis, Ottawa, Ill.	

FROM CHICAGO HOMEOPATHIC MEDICAL SOCIETY.

N. B. Delameter, 31 Washington St., Chicago. Central 1926.	J. B. Cobb, 42 Madison St., Chicago. Central 32.
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GENERAL COUNSEL.

Calhoun, Lyford & Sheehan, 806 The Rookery, Chicago.

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Bond.....		Livingston.....	
Boone.....		Logan—Carl Rembe.....	Lincoln
Brown—William Parker.....	Mt. Sterling	McDonough—Arthur Adams.....	Macomb
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ORIGINAL ARTICLES

DIAGNOSIS IN ACUTE INFECTIONS OF THE HAND.*

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CHICAGO.

In previous contributions¹ I have discussed certain phases of this subject, and in the near future I shall discuss at length infections of the tendon sheaths. In the proper care of infected hands there are three phases, each one of which is as important as the others: first, the diagnosis; second, the immediate treatment, and third, the after-treatment. Failure in any one of these three entails poor result. My present remarks will be confined exclusively to a correlation of the facts concerning the diagnosis of the various types, and in a subsequent short article I shall deal with a correlation of the treatment. I shall discuss only the more salient clinical facts and try to present a concise statement as to where pus and infection are most likely to be found.

There are three types of acute infection in the hand, each one of which may be found separate and distinct from the others, or again any one may be found in conjunction with the others. These types are: (1) Lymphangitis, (2) tenosynovitis, (3) abscesses in the fascial spaces. To these may be added a fourth type, which can be differentiated clinically, i. e., chronic suppurative processes.

LYMPHANGITIS.

Lymphangitis may be either superficial or deep. The deep form ends frequently in tenosynovitis and will be discussed under that heading. The superficial type must be differentiated from the other forms of infection, since here the treatment is essentially different. We receive a his-

*Read at the Fifty-eighth Annual Session of the Illinois State Medical Society, May 19, 20, 21, 1908.

1. Surgery, Gynecology and Obstetrics, October, 1905; November, 1907. Zentralblatt für Chir., No. 37, 1908.

tory of a slight abrasion or injury on the hand; within a short time the patient complains of all the symptoms of systemic absorption—headache, thirst, sleeplessness, restlessness and fever. On examination we see locally an area of suffused redness with a swelling of the finger that is involved. The color seldom becomes that violaceous tint seen in abscess formation or the pallor which succeeds it. In the most acute types there may be little or no edema, but most often one finds a considerable edema most marked upon the back of the hand. The swelling varies with the site of the invasion.

A general rule may be enunciated. The lymphatics pursue the shortest course to the back of the hand. In other words, if the infection enters at the distal part of the palm the course will lie between the bases of the fingers. In the center of the palm, however, the infection will spread by the deeper lymphatics following the lymphatics along the ulnar and radial vessels (Poirier). The lymphatics upon the dorsum will show up as bright red streaks running up the arm. Ordinarily one or two only will be seen upon the back of the forearm, although there are fifteen to twenty here. The lymphatics from the little finger and ring finger pass to the glands in the epitrochlear region, and except in the fulminating type these will be found enlarged. From here the infection is carried to the axillary region and thence to the circulation. The lymphatics from the thumb and index finger will be found coursing upon the back and outer side of the forearm and wending their way to the axillary glands without the intervention of the epitrochlear glands. Infection from the middle finger may pass either to the epitrochlear glands or to the axilla, but in about 15 per cent. of the cases the lymphatics follow the course of the cephalic between the deltoid and pectoralis major, over the clavicle and thence almost directly into the circulation, thus explaining the clinical observation that certain cases of infection of the middle finger ends in immediate severe intoxication.

TENOSYNOVITIS.

This type of infection is much more difficult to diagnose and the surgeon is often in doubt as to whether he is dealing with a lymphangitis or tenosynovitis. The three cardinal symptoms and signs are: (1) Exquisite tenderness over the course of the sheath, limited to the sheath. (2) Flexion of the finger. (3) Exquisite pain on extending the finger; most marked at the proximal end. These symptoms are seen to be only a difference in degree from those found in any infection of the hand, but when sought for in an intelligent manner there is not much difficulty in differentiating the conditions.

The size of the primary wound is of no importance. The tendon sheath may become infected following a simple pin prick or an extensive wound. One finds the cardinal symptoms I have mentioned. In addition, he may notice that the abutting sides of the adjacent fingers are swollen as well as the back of the hand. The whole hand is slightly tender and the fingers are slightly flexed. The involuntary expression of pain which is noticed when the tendon sheath is touched by the exam-

ning finger leaves no doubt in the mind of the examiner as to the location of the infection. The greatest amount of tenderness is generally complained of at the proximal end of the finger sheath in the palm at the metacarpo-phalangeal articulation. The flexion of the fingers is probably due to several factors in addition to the spasm of the muscle controlling the tendon; for instance, the tension in the tendon sheath and the arthritis of the finger joints. A difference is readily seen between

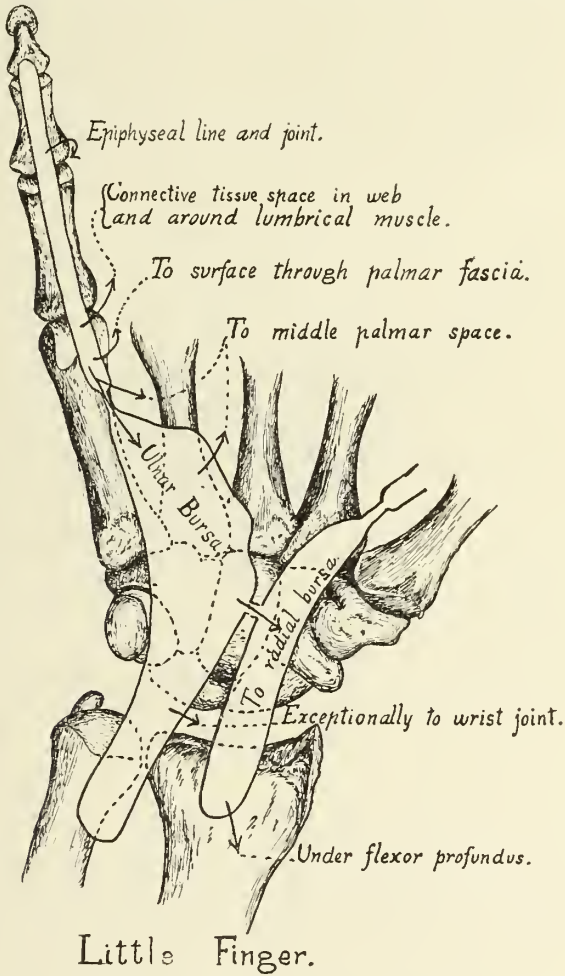


Fig. 1.—This is a schematic drawing showing the points at which the tendon sheath is likely to rupture and the areas which will become involved secondary to extension from infection of the little finger and the ulnar bursa.

the rigidity in the infected finger and the simple flexion in the adjacent digits. So great is this difference that, for example, one is able to diagnosticate an extension into the palmar sheath from the little finger sheath, since the character of the flexion changes to the more rigid noted in tendon sheath infection. That type of infection developing from

pin pricks and very slight injuries is generally of streptococic origin; hence the inflammation is most virulent. It spreads rapidly and jeopardizes not alone the function of the hand but the life of the patient. The second type, which occasionally accompanies lacerated wounds or adjacent inflammation, is due most often to staphylococci, and here the infection is local and may involve the entire sheath or only a portion of it.

The spontaneous pain, which was at first severe, grows less as the edema develops and may delude the surgeon into believing that the process is subsiding. The arm seems "to fall asleep," as the patient expresses it. Paresthesias with creeping and itching sensations may be present, and especially after rupture of the sheath the tenderness may subside to a considerable degree, leading the surgeon to an erroneous conclusion. An infection of the sheath of the tendon in the little finger may be localized to the finger. Extension to other areas is possible, however. The following are the most common secondary sites of pus: (1) The ulnar bursa; (2) the radial bursa; (3) the forearm; (4) fascial spaces in the hand, (a) middle palmar space, (b) lumbrical space; (5) osseous involvement, middle phalanx; (6) joints, proximal interphalangeal, wrist; (7) rupture to the surface (Fig. 1).

Extension to the ulnar bursa is often difficult to diagnose. It is marked by the development of edema in the hand, especially upon the dorsum. A general fullness in the palm is found, but the palmar concavity is still present. On the flexor surface the greatest swelling is noted just proximal to the annular ligament. This is not necessarily due to the rupture of the sheath here but to the looseness of the tissues which permits of distention. This swelling is accentuated by the non-distensible annular ligament distal to it. The swelling in the palm occurs at the same time, but is not so conspicuous owing to the palmar fascia, which diffuses the swelling so that it is not accurately limited by the outline of the ulnar bursa. Moreover, the surrounding edema tends to confuse the picture. In acute infections it is not wise to wait for evidences of fluctuation. The incision must be made during the stage of infiltration.

The most conspicuous and valuable sign is the extension of the exquisite tenderness to the area involved. It should be remembered that this is absent after a few days. The wrist becomes fixed, the thumb shows tenderness to pressure, and particularly on passive movements is the sensitiveness noted. It is seen readily of how much importance this latter symptom is in diagnosing an extension to the ulnar bursa from the little finger. We note that while at first the symptoms are limited to the little finger and slight changes in the ring finger because of its juxtaposition, all at once the thumb begins to show the characteristic signs, while the index and middle fingers remain unchanged except for the increase of pain on passive extension explained above. This sensitiveness of the thumb may be due to either the juxtaposition of the sacs or to a real extension into its sheath. At first there may be a diffuse redness of the palm and dorsum, but it rapidly gives place to a whitish or even

cyanotic hue. Above the wrist, however, the tissue generally takes on a marked red color which later becomes violaceous. The temperature and pulse may not be of any diagnostic importance. Ordinarily after the infection has lasted a few days and the walling-off process has begun, the temperature is that of the local accumulations of pus and varies with the freedom of drainage. In the first few days, however, the systemic absorption bears no relation to the abscess formation and can not be relied upon for diagnostic purposes. From the bursa various extensions may take place into the fascial spaces of the hand and forearm. The symptoms and signs will be taken up under the heading of "Fascial Space Infection," *vide infra*.

Involvement of the index, middle and ring fingers presents the same signs as the other finger. The only difference is that here the paths of

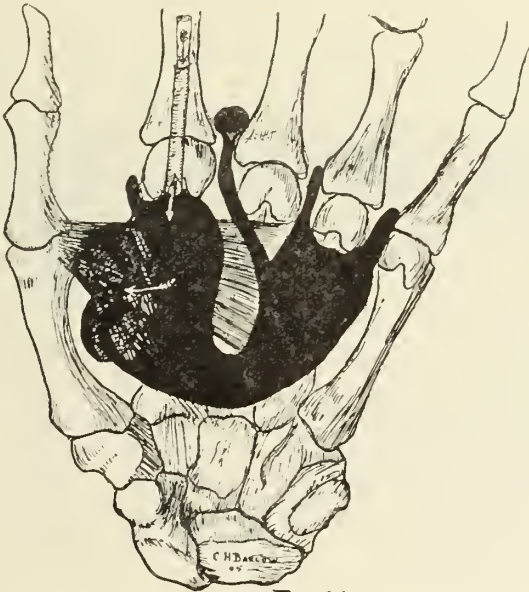


Fig. 2.—This is a schematic drawing made from a dissection of the hand injected *via* the tendon sheath of the index finger. It represents the thenar space filled with pus. This has extended to the dorsum between the metacarpals of the index finger and the thumb and also has extended by rupturing the septum between thenar and middle palmar spaces into the latter and has filled the middle palmar space. We should note also the extensions along the lumbrical muscles. The extension between the index and middle fingers has appeared on the dorsum as shown by the globular prolongation.

extension are different. Besides the extension to the surface at the proximal end, involvement of the middle phalanx, and the proximal interphalangeal joint, the finger may show extension to the lumbrical space to either side, and from here the adjacent tendon may be involved. Extension to the radial bursa is diagnosticated as following an ulnar bursitis by the increased swelling and tenderness in the thenar eminence and along the sheath. The tumefaction of the thenar area is not that of abscess in the thenar space (Figs. 2 and 3).

Diagnosis of extension from a tenosynovitis of the thumb into the radial bursa and then into the ulnar bursa is more difficult. We must depend upon the extension of the tenderness to the area over the radial bursa and the tenderness above the anterior annular ligament. When the extension has proceeded further into the ulnar bursa the diagnosis is easier, since all of the fingers become painful to passive extension, most markedly the little finger, with tenderness over the area of the ulnar bursa. The tenderness over the sheath is not always so marked in secondary involvement, however, due possibly to the previously developed edema. The pus from the radial bursa may rupture into the tissues of the forearm and then the pus lies under the flexor profundus tendons just as in rupture of the ulnar bursa.

FASCIAL SPACE INFECTION.

Pus may be found in various spaces in the hand and forearm, as I have already pointed out. This may occur as a primary infection or



Fig. 3.—In this case the thenar space became involved secondary to a tendon sheath infection of the index. Notice the ballooning of the thenar space while the concavity of the palm is still present. This appearance is typical of thenar space abscesses.

secondary to lymphatic or tendon sheath infection, especially the latter. I have demonstrated by injection and serial sections the spaces in which such accumulation can take place. These well-defined spaces are five in number: (1) Middle palmar space, (2) thenar space, (3) hypothenar space, (4) dorsal subcutaneous space, (5) dorsal subaponeurotic space.

The thenar and middle palmar spaces are by far the most important in the hand. I shall abridge their description from my earliest monograph. "We note that we have five great spaces, with their tributaries, in which pus can accumulate:

"First, the dorsal subcutaneous, which is an extensive area of loose tissue, without definite boundaries, allowing pus to spread over the entire dorsum of the hand.

"Second, the dorsal subaponeurotic, limited upon its subcutaneous side by the dense tendinous aponeurosis of the extensor tendons, upon the deep side by the metacarpal bones, having the shape of a truncated cone, with the smaller end at the wrist and the broader at the knuckle. Laterally the aponeurotic sheet shades off into the subcutaneous tissue.

"Third, the hypothenar area, a distinctly localized space.

"Fourth, the thenar space, occupying, approximately, the area of the thenar eminence, to the flexion adduction crease of the thumb, not going to the ulnar side of the middle metacarpal. It should be remembered that this space lies deep in the palm, just above the adductor transversus (Fig. 5).

"Fifth, the middle palmar space, with its three diverticula below along the lumbrical muscles, limited by the middle metacarpal bone upon

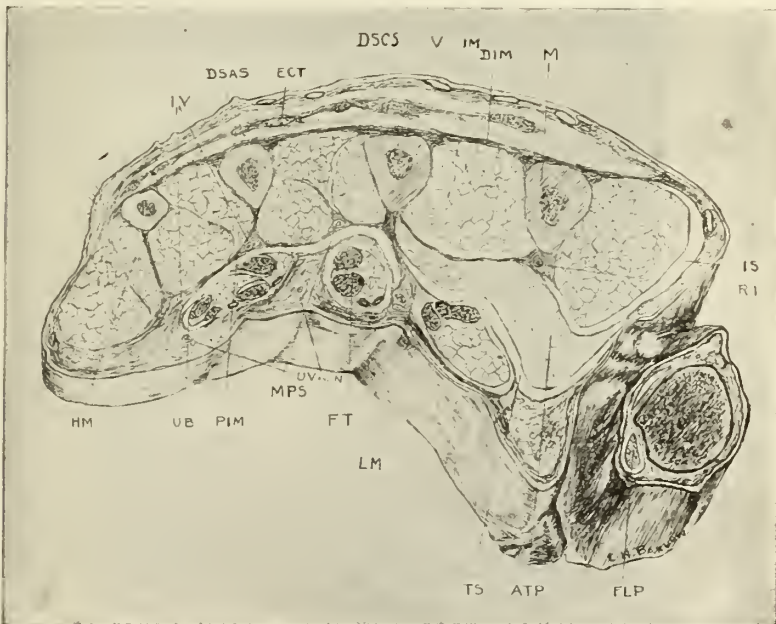


Fig. 4.—Shows the relation of the middle palmar space to the thenar space and to the tendons and lumbrical muscles. It will be noticed that these spaces lie dorsal to the tendons. The small ulnar bursa can be seen at the side of the tendon of the little finger. Note extension of the thenar space so as to become subcutaneous on the dorsum between the metacarpals of the index finger and thumb—3½ cm. proximal to metacarpophalangeal joint.

SS—Synovial Sheath.
 DSCS—Dorsal subcutaneous space.
 DSAS—Dorsal subaponeurotic space.
 ECT—Extensor communis tendon.
 FT—Flexor tendon.
 LM—Lumbrical muscle.
 IM—Interosseal membrane.
 M—Metacarpal bone.
 BV—Blood vessels.
 N—Nerves.
 TS—Thenar space.
 MPS—Middle palmar space.

ATP—Adductor transversus pollicis.
 DIM—Dorsal interosseous membrane.
 PIM—Palmar interosseous membrane.
 UB—Ulnar bursa.
 IS—Space between adductor transversus and first dorsal interosseous.
 DIM—Dorsal interosseous membrane.
 FLP—Flexor longus pollicis in its synovial sheath.
 HM—Hypothenar muscles with intermuscular spaces.
 IV—Interosseous vessels and nerve.

the radial side, overlapped by the ulnar bursa upon the ulnar side, and separated from the thenar space by a partition which is very firm everywhere except at the proximal end, where it is rather thin. A small isthmus can be found leading from the proximal end of the space under the tendons and ulnar bursa at the wrist up into the forearm" (Fig. 4).

The forearm has certain spaces which are likely to become infected. In my second contribution upon chronic phlegmons I described the results of my investigations at length. Briefly it can be stated that pus that has extended from the hand to the forearm always lies under the flexor profundus, upon the pronator quadratus and intermuscular septum, passing upward following the ulnar artery, going as high as the elbow. Now, how shall we diagnose an involvement of these various



Fig. 5.—This is an X-Ray photograph showing the thenar space and the ulnar bursa injected separately with plaster of Paris impregnated with lead. You will note that the thenar space has been filled, but is entirely separate from the shadow thrown by the ulnar bursa. The ulnar bursa has ruptured at the upper end and the black mass represents the extension into the forearm underneath the flexor profundus. The middle palmar space is here entirely clear. These injections were made under 20 pounds pressure.

spaces? First, upon the possibility of extension from other foci. The middle palmar space would receive infection by extension from the middle finger, ring finger, little finger, also from the ulnar bursa and localized infections in the lumbrical canals between the heads of the metacarpals which commonly occurs in the workers with chapped hands where the cracks are frequently found at this point. Again it may be involved, of course, by direct implantation or through osteomyelitis of the middle

and ring metacarpals. It is possible for an infection of the thenar space to rupture into the middle palmar space. The thenar space might receive the infection from the index finger or thumb, by direct implantation, by osteomyelitis of the index or thumb metacarpals, and finally it would be possible for the space to become involved secondarily to the middle palmar space. The forearm may be involved by extension along the connective tissue spaces back of the tendons or by rupture from either the ulnar or radial bursa.

The source of the involvement of the other spaces can be readily surmised. When the middle palmar space is involved we notice that whereas earlier there had been a fullness in the palm without loss of the concavity, that now the concavity begins to be lost and as the process becomes marked a slight bulging of the palm is noticeable in spite of the palmar

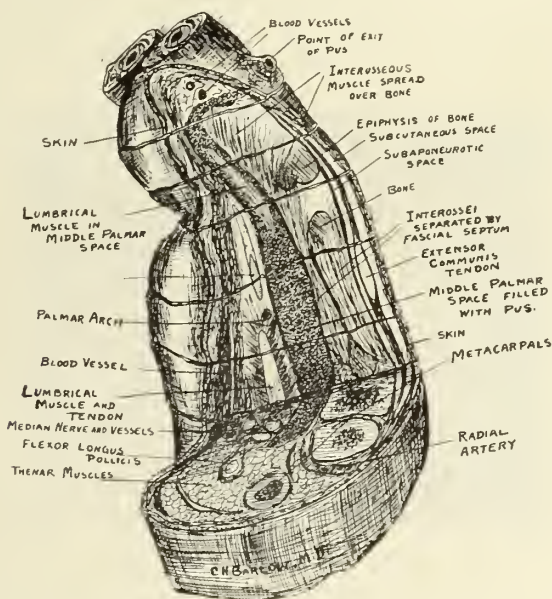


Fig. 6.—Drawing showing the relation of pus in the middle palmar space to the tendons. Also showing course pus pursues in its course along the lumbrical muscle to point on the dorsum near the web. Serial sections of the hand were made as shown, the tissues teased out, middle palmar space filled with plaster of Paris. Sections restored to normal position and sagittal section made between ring and middle metacarpal of all sections except the proximal. Heavy dotted area shows position pus would occupy.

fascia. The correlation of this with tenderness is of value (Fig. 6). Early, before the swelling becomes marked, the tenderness is exquisite and limited by the outlines of the middle palmar space, but as the swelling increases the tenderness, and especially the spontaneous pain, grow less. There is generally more or less extension along the lumbrical canals so that the swelling of the area between the heads of the metacarpals adds to the general picture. The area may be red, but generally it is pallid. With this there is found the flexion of the fingers due to the juxtaposition of

the tendons to this area. They are held rigidly flexed, decreasing in rigidity from the little finger to index finger. The latter may even have considerable voluntary motion. If the pus has extended along the lumbrical canals to the base of the fingers there may be swelling and induration in the loose tissue of the web and an accumulation of pus may be found to have extended to the dorsum between the heads of the proximal phalanges. The relation of the swelling in the palm to that in the thenar area is of great importance. In involvement of the middle palmar space there is an associated swelling of the thenar space of almost the same degree as that of the middle palmar space, but this is due to edema. When the thenar space becomes involved the swelling is out of all proportion to that of the palm if it be involved. The thenar space will look as if a balloon had been inserted into the area and blown up to its full capacity. I know of no clinical picture in surgery that is more characteristic than this of thenar space infection, and having once seen it no one can forget it (Fig. 3). Besides the ballooning out of the thenar area

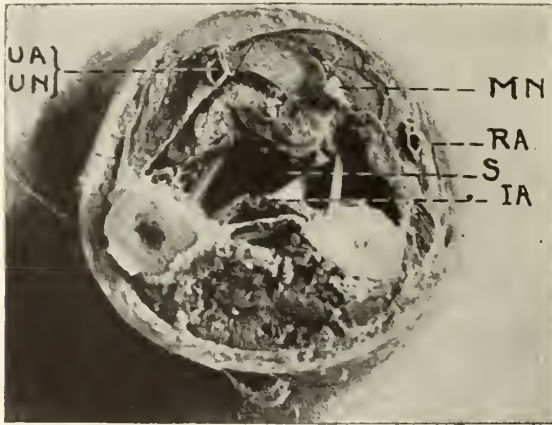


Fig. 7.—The above photograph is one of the series of sections made throughout the forearm, and shows the area in which pus lies as it invades the forearm. The section is taken just above the pronator quadratus. The space is bounded above by the flexor profundus and on its dorsal side by the interosseous membrane. Notice that the vessels and nerves with the exception of the interosseous (i. a.) are well separated from the space.

the metacarpal of the thumb is pushed away from the hand; the flexion of the distal phalanx becomes more marked, though lacking the rigidity found in involvement of the tendon sheath of the flexor longus pollicis. This infection of the thenar space may be primary and isolated or secondary to a middle palmar infection. The primary, isolated infection of the thenar area is diagnosed promptly, as a rule, so that treatment is early and extension to the middle palmar space or other areas prevented.

The edema upon the back of the hand is always present and the swelling much greater, of course, than in the palm, even though that be the site of the pus. It is extremely uncommon to find any pus upon the dorsum unless it has been a lymphatic infection or has extended, as al-

ready described, between the metacarpals of the index finger and thumb or between the heads of the proximal phalanges. We should bear in mind that edema gives rise to a soft pitting, while if pus be present an induration can always be felt. If this fact is borne in mind many embarrassing mistakes will be avoided. I think that in the case of three-fourths of the hands I see in which treatment has been instituted a number of unnecessary and improper incisions are found upon the dorsum. The infection may spread from either space to the forearm, or this may be involved from a tenosynovitis (Figs. 7 and 8).

As has been pointed out, the pus passes between the pronator quadratus and the flexor profundus to the area between the latter and interosseous membrane and at about the middle of the area it passes more superficially and to the ulnar side along the ulnar artery and nerve. This extension is characterized by a brawny induration that should not be confused with the softness of an edema. No fluctuation should be expected, since the accumulation lies too deeply. If the primary source is the ulnar



Fig. 8.—This section taken about the middle of the forearm shows how the space represented in Fig. 7 extends from the interosseous space and comes to lie in juxtaposition to the ulnar artery and nerve. It also shows why the incision should be made upon the ulnar side and not upon the flexor surface. The cotton in one side has been displaced in the other, and the space held open with blocks of wood. It is because of this juxtaposition of the ulnar artery that secondary hemorrhage in this vessel is common.

or radial bursa, this extension is marked by the loss of the relative swelling immediately above the annular ligament due to the distended upper end of the sheath. This swelling is not any less, but that of the arm is greater. The tenderness may become less, so it can not be depended upon as a symptom. The redness is generally greater; the spontaneous pain while at first marked, rapidly subsides. At this time some pus may accumulate subcutaneously above the wrist and lead to the supposition that there is no pus under the tendons, so valuable time is lost.

Involvement of the hypothenar space can often be prognosticated from the site of the primary injury, while the relative lack of swelling in the palm and fingers, with absence of involvement of the tendons, combined with the ordinary symptoms of abscess, leads us to an easy diagnosis. Fortunately, the hypothenar area is so separated from the

remainder of the hand that it is not frequently involved secondarily to palmar infection. An infection localized under the subaponeurotic fascia to the exclusion of the subcutaneous tissue may be difficult of differential diagnosis. However, we are aided materially if we remember the character of the primary injury, the methods of extension to this space already mentioned, and the local evidences of infection upon the dorsum, with the pitting edema of the subcutaneous tissue, yet lacking the brawny induration and localized tenderness of a subcutaneous abscess.

We may be in doubt as to whether we are dealing with a tenosynovitis of the ulnar or radial bursa or a rheumatism of the wrist. I have seen several such cases. In one case it was difficult to determine whether the patient was suffering from a gonorrhoeal rheumatism of the proximal interphalangeal joint of a finger or a gonorrhoeal tenosynovitis with secondary involvement of that joint. The latter assumption was later found to be the condition present. In those cases which lack traumatic history, and where there is an apparently spontaneous development of an inflammation especially at the wrist, the diagnosis may be most difficult in spite of the ease with which a theoretical differential diagnosis is made. Here again, however, the localized tenderness over the sheath and pain on extension of the finger are of the greatest importance. These cases, moreover, are always virulent and extend rapidly, so that if it be a tenosynovitis the hand grows rapidly worse. In a rheumatism there is as much pain on the dorsal as on the volar surface, the swelling involves the wrist more than the hand, fingers or forearm, and other joints may be involved. The presence of a gonorrhoea does not aid us materially, since either condition may follow. Subcutaneous infections are seldom difficult to differentiate.

The limits of this paper do not permit of a discussion of the treatment, since it can not be condensed into a short space. I refer those interested to the longer monographs I have contributed to the literature and a third one upon tenosynovitis which will appear soon. I may say briefly, however, that the thenar space is best opened by an incision upon the dorsum between the metacarpals of the index finger and the thumb; the middle palmar space by an incision along the lumbrical spaces extending into the palm; the ulnar bursa by splitting it throughout its length, cutting the anterior annular ligament; the radial bursa; incision up to within a thumb's breadth of the anterior annular ligament; the fingers by lateral incisions into the sheaths; the forearm by lateral incisions above the wrist joint and an ulnar incision at the middle of the forearm. The after-treatment to preserve function is of as great importance as the proper operative procedure. Either without the other is sure to end in disappointment and failure.

DISCUSSION.

Dr. F. A. Besley, of Chicago:—It has been my privilege to be in a position which has enabled me to watch closely Dr. Kanavel's work on acute infections of the hand, and I want to express my appreciation for what it has taught me. Up to the time I had an opportunity of watching his work, I belonged to that class of surgeons who open infections of the hand or arm where there is redness, with-

out any definite regard for the location or position of the pus. What he has given us is not theoretical work. We have had opportunity to put these theories into practice, and we get good results practically.

I want to say a word or two in emphasizing some important factors. First, as to gauze drainage. Gauze does not drain pus at any time. The second is with reference to tubal drainage in the hand, forearm and wrist. We practically never use tubes in the hand, the wrist or arm, and our reason for not using them is that they produce a pressure necrosis of the tendon sheaths with subsequent extension of the infection along the tendon. We have found no difficulty in securing ample drainage if our skin incisions are long enough, and these skin incisions do not in any way produce enough scar tissue to cause subsequent cicatricial contraction. We depend upon the length of the skin incision for drainage, and not upon tubes or gauze. And I may say further, we never use irrigation with strong antiseptics. We believe there is no antiseptic which will materially affect the bacteria that are growing beneath the granulating surface. We believe that most antiseptics, if not all, destroy more cells that are proliferating in their attempt to restore lost tissue than they kill bacteria. Iodin may be the one exception to this rule. However, we do not find it necessary to use antiseptic irrigation if we obtain good results from free drainage which can be accomplished by means of long skin incisions.

Just a word or two about peroxid of hydrogen. It is used extensively in those cases where there are small sinuses, and I mention it to condemn it. It never kills any bacteria, but it may be productive of much harm.

Again, I wish to express my appreciation of this work and to say it is unquestionably the most scientific that has ever been done on this very important subject. If one looks in our text-books he will be impressed with the dearth of literature on the subject of hand infections, which condition has caused the loss of many useful hands and many lives.

Dr. Thomas J. Sullivan, of Chicago:—The paper of Dr. Kanavel was very interesting to me because I am familiar with his work. I know of no surgery in connection with infections which has been more neglected than the surgery of the hand. A workingman or workingwoman is very frequently unfortunate in having an infection of the hand. As it is seemingly a small matter, the patient applies to a general practitioner for treatment, and the probabilities are this general practitioner has never devoted much time or consideration to this subject, consequently there is a likelihood of the spread of the infection, followed by destruction of the tissues, which necessarily takes place because the case is not very well understood. Even among good surgeons this subject has not received the attention it should. Dr. Kanavel has devoted much time to this subject and by means of these beautiful plates he has shown he has pointed out the way these infections usually go, and I am sure he has made a great advance in the study of this subject. He has also pointed out that the infection passes from the hand under the annular ligament and up under the forearm. He has explained why we get necrosis of bone in these cases because the pus and infectious material pass so closely. He has opened up a new chapter in this surgery and a very good one. The hour is too late to discuss the subject fully, but I should like very much indeed to see this paper published, and all those who undertake to incise a hand or to control infection of the hand to consider its anatomy as he has pointed out, and the locations where these infections pass, as well as the method of incisions he has called our attention to. He has called our attention to a way of establishing drainage without tubes. Simply making the proper incisions will give us good drainage. I have been handling or treating a great many cases of these infections for many years, particularly in cases occurring in packing houses, by resorting to a similar method. I have been told that not infrequently these infections were followed by amputations of fingers and hands, and even deaths were common. This is not true to-day if these infections are properly incised in proper locations and properly taken care of. You do not have loss of fingers and hands and death following. Years

ago I saw deaths from simple scratches or slight wounds of the hand, which never would have occurred if incisions were made early in proper locations. A good free incision is an excellent means of draining these infections promptly and thoroughly, and that ends the whole trouble. The infection will never pass up the forearm if the incision is made properly in the hand. A free incision should be made and can be made with great safety if the anatomy is understood, as pointed out in this excellent paper.

Dr. V. J. Cohenour, of Joliet:—I should like to ask Dr. Kanavel if he uses wet dressings in these infections of hand? Furthermore, where he has published his other papers on this subject so that we may get copies of them?

Dr. A. P. Heineck, of Chicago:—I want to acknowledge my appreciation of the valuable work done by Dr. Kanavel. I know his work is based on accurate anatomical knowledge, and on prolonged clinical observation. I am so convinced with Dr. Kanavel's knowledge on this subject that when I am about to lecture to my classes on infections of the hands, I always invite him to conduct the work as well as the clinics on that subject. The value of Dr. Kanavel's work can not be overestimated. Hand infections, be they of the subcutaneous cellular tissue, of the tendon sheaths, or of the bone, are of such frequency, and, when unwisely treated, can be productive of such disastrous results, that their study is well worthy of the attention of our best minds. It is imperative that physicians become conversant with the most appropriate methods of combating and controlling acute suppurative inflammations of the hand as a whole or of its constituent structures. The earning capacity, the economical value of most men and most women is proportional to the functional integrity of their hands. I have seen disastrous results following the unwise handling of hand infections. Following what apparently at the outset must have been a trivial infection, I have seen prolonged disability that could largely be attributed to the medical attendant's ignorance, carelessness or both. It was not long ago that we had a case at the Cook County Hospital in which, following an infected finger, treated by one of the extensively advertised pastes, there developed an embolic abscess of the thyroid gland almost entirely destroying this organ and a suppurative inflammation in both knees, resulting in incomplete bilateral ankylosis. Numerous are the cases that have been admitted to the same institution in which fingers, hands and forearms have been amputated, which, I think, could have been saved had judicious treatment been instituted at the beginning of the suppurative process. We all have been taught that infective inflammations are inflammations that tend to spread; that they spread along the lines of least resistance; that they spread by continuity and contiguity of tissue; that they spread by means of the lymphatic channels and by means of the blood vessels, but most of us, and I include myself among the negligent, have not given adequate study to the anatomy of the hand. With possession of accurate anatomical knowledge comes a better understanding of the routes of progression followed by spreading infections. The paper which we have just heard deserves the highest commendation, and I would suggest that each member get from Dr. Kanavel a reprint of his article, as by so doing he can increase, without doubt, his field of usefulness.

Dr. J. Smith Thomas, of Pleasant Hill.—I desire to thank Dr. Kanavel for his excellent paper. I have been greatly benefited by it from the standpoint of a general practitioner, and having had some three or four cases of this kind the past year I can not find words to express my appreciation of his valuable contribution. I know that I shall go home much better informed as to the treatment of this kind of cases.

Dr. Kanavel (closing the discussion):—Regarding the use of hot dressings, I ordinarily use hot dressings for the first twenty-four to forty-eight hours after making incisions. I also put a Bier constrictor around the arm for the same length of time. At the end of that time, if the hand is doing well, I stop the hot dressings and apply the ordinary dry dressings.

THE PSYCHO-PATHOLOGY OF HYSTERIA.*

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Originally the term hysteria expressed very narrowly the idea it contains, and only at a comparatively late day was the fact made clear that sex is never alone responsible for this many-sided complexity. In fact, it is now known that somatic cause may be wholly absent. The term, then, long represented an unfathomed depth, an unexplored region of human personality. It has been very aptly characterized as "a vague range of phenomena called by a meaningless name," while in the popular mind hysteria often depicts wholly unrelated conditions.

As practitioners there is scarcely any malady that we approach with more caution. So protean, so lawless apparently, so persuasively mimetic, so far-reaching, so refractory, and always obscure—no wonder we pause thoughtfully. In olden times hysteria often meant witchery and crime. Priestcraft was then the physician, torture the therapeutic agent. Now that illusion of an intellectual twilight has yielded to modern knowledge, yet even in our daylight there are still many deep shadows.

At the outset we may dismiss the question of a morbid anatomy in hysteria. In some old cases there have been found degenerative changes, like sclerosis; but these are sequences—not primary conditions. So, too, with attempts to formulate a pathology. A dynamic as well as a vasomotor theory have been urged, but both are obscure—neither really explains. In the first the familiar simile of electricity is flashed over the dark places. In the other molecular changes can not be shown; and if there be anemias or congestions there are never inflammations or atrophies, at least in pure hysteria. Furthermore, the anemias or congestions, if there be such, are inconstant and lead to nothing, except possibly to the final mechanism of expression. And interesting perhaps as this mechanism might be, for our ends it operates too superficially above the deep states that underlie hysteria. Assume, for instance, that Dercum's neurone theory is sound; does it offer anything beyond such a mechanism; does it even touch the real state that compels the dendritic slackness? That gentleman himself admits "the impress of a psychic origin" for hysteria, yet he halts at the psychological explanation. In other words, the one theory is materialistic and respectable; the other lacks such physical basis and is speculative. Nevertheless, the inquiry is inviting.

At once we encounter the two ideas of human personality: One is the old-fashioned belief that a man's personality is an entity—a soul that dominates his being. The other, upheld by the experimentalists, is exactly the reverse; they deny any underlying unity, any life independent of the organism which they compare to that of a great colonial empire, made up of many units, with consciousness its vague complex. At death the co-ordination falls to pieces, and that is the end. Such, in

* Read at the Annual Meeting of the Illinois State Medical Society, May 19, 20, 21, 1908.

brief, is the dictum of experimental psychology; it absolutely rejects the noumenal self.

There is much to be said on either side; indeed, the dispute had once appeared hopeless. Lately, however, new evidence has been found and it largely reconciles the controversy. So far the analysis of the co-ordinators had seemed unanswerable; their observations of independent centers, in cord, ganglion, and brain, appeared final; in fact, all that they claim, as an authority puts it, must be unreservedly admitted. But while they have upbuilt the colonial theory, an enlargement of their own investigation, with a deeper analysis on parallel lines, shows—to quote directly—“traces of faculty which this material or planetary life could not have called into being, and whose exercise involves and necessitates the existence of a spiritual world.”

You perceive that these last statements are pivotal to the discussion, so far as it has gone; that they contain syllogisms of the deepest importance. But you will also understand that it is not my undertaking to lay any of this evidence before you. Suffice it to say that this great question now seems to have reached a definite point. We see the two antagonisms yield; we see established both an entity or dominating soul, as well as many individual centers of consciousness, not a few of which often act in at least apparent independence. In fine, we are more than ever impressed by the composite nature of man, for now several subsidiary elements appear, and the pertinent one is the further division of man's personality into the supraliminal and the subliminal spheres. The line between the two, by no means imaginary, is called the threshold of consciousness, and all activity must arise above its level to become a part of conscious life.

Of course, this advance has had opponents. Not to mention the advocates of spiritism, many psychologists attack the theory on the ground that its processes are due chiefly to the unconscious cerebration of hysteria. But they fail again to explain not only the hysteria but the unconscious cerebration. At all events, on the other side are many indisputable facts. Consider, for instance, the testimony of Sir John Herschel, a foremost thinker of his day, who spoke far in advance of the modern view. Away back in 1816, long before these questions had appeared, he tells us clearly of “an intelligencce, working within our own organization, as distinct from that of our own personality.” Hence he deduces “the suggestive principle” of the mind—a phase that simply means what is now meant by subliminal mentation. Again, the overwrought objections of the technician fall utterly when we review the claims of the subliminal self. What of its uprushes?—those outpouring waves of the inner self that demand explanation? So, too, “organic processes are constantly taking place within us that are not subject to our control, but which make the very foundation of our being.” We know, further, what strong excitement may do, what hidden feelings and motives it may bring out, what actions induce. Then there are sensations too feeble to be individually recognized; memories and experiences usually dormant; faint stimulations, slumbering thoughts, or emotions per-

haps "strong, definite, and independent, but which seldom emerge into that supraliminal current we call ourselves." And all these submerged thoughts, sensations and emotions possess the characteristics of conscious life; for the life beneath the threshold is no intermittent thing. Its processes are comparable with upper ones, as when a problem is solved in a dream. Also there are chains of subliminal memory, involving old impressions and response to new ones—all constituting what we call a self, only it is below the surface. Finally, unifying this complex organism is the soul, the master element of spiritual origin.

Thus, briefly, we have an outline of the subliminal self. Now for the application. The subliminal uprushes—"the impulses or communications which reach our emergent from our submerged selves"—may, and often do, differ widely from supraliminal elements. This characteristic, while seemingly contradictory to some previous statements, is easily maintained, and once assumed, the problem of the hidden self is still further advanced. At last, perhaps, no one will dispute the facts of hypnotism, no more than he would dispute those of the *x*-ray and of wireless telegraphy, of telepathy and telaesthesia—"those faculties (which) suggest either incalculable extension of our own mental powers, or else the influence upon us of minds freer and less trammelled than our own."

Here, then, are elements that do not enter into supraliminal life; moreover, they are not necessarily unhealthy. Indeed, this difference of the subliminal from the supraliminal does normally lie wholly within the bounds of health, where it may produce such results as are regarded as the inspiration of genius. Take music, for instance: "we know the difficulty of explaining its rise on any current theory of human faculty." "Not from careful poring over the mutual relations of musical notes that the masterpieces of melody have been born," but "in an uprush of unsummoned audition, of unpremeditated and self-revealing joy." To cite one conspicuous instance: Thus it was with Mozart, who could apply just what spur was needed, a self-suggestion, and the outcome—"a happy mixture of subliminal with supraliminal faculty"—is called genius, the genius of growth, not the genius of decay, of which Lombroso and Nordau would tell us. But with the woman overburdened, either ancestrally or accidentally, obsessed perhaps by some obscure fixed idea that puts the subliminal life out of joint, the inco-ordinated uprush is called hysteria; and the two, genius and hysteria, are the far distant poles of human personality.

We may now enumerate:

1. Man has been shown to be "at once profoundly unitary, and almost infinitely composite."
2. That the unifying principle is an indwelling soul.
3. That consciousness implies potential memorability—not, of course, that the thing is necessarily remembered, but that it has been assimilated by consciousness, so that a stimulus will again bring it into the current of perception. Hence, experience accumulates, most of which sinks quickly into the subliminal self.

4. The stream of consciousness above the threshold is constantly changing, as it must be limited to the demands of the moment. Consequently, a faculty of selection is always at work in the healthy mind, its activity being directed either by primary structure, by education, or by environment.

5. That of the mode of integration—that is, of the rule of the soul—we have no knowledge save of a law of cohesiveness which acts upon a sound personality, binding all parts into one whole, much as the law of gravity does terrene particles. Our inability to understand this unionism begins at early cell life. How a single cell holds together, the nature of its unity—here is a very old problem. Add cells together and the mystery deepens. In short, we admit at once that of the inner nature of this co-ordination, of this central government, nothing is known save that its distinguishing result is a close cohesiveness of an intricate colonial empire. Hence, we must keep constantly in mind this psychological law of cohesiveness—the psychical analogue of gravity in the physical world.

With the psychological foundation thus laid, our subject is easily outlined. Again we must begin at the bottom, and the first condition found in hysteria is one of psychical poverty, which means “a slackness of the grip with which the unifying principle” dominates the empire. Hence follows a relaxation of its cohesiveness. In consequence of these two lowered states, one or more of the normal perceptions become burdens, and of so much as the patient can dispense with, he puts off perceiving. As with morbidity in general, the condition tends to become worse, and after a while the patient awakens to the fact that he “can no longer bring back sensations which he has neglected too long—he has become anesthetic.” Thus (to quote Janet again) it is “in the assimilation of elementary or affective states that the hysteric fails; she can only take in the minimum of sensations.” Or again, over parts of the mechanism either of sensation or motion or thought, psychic control gives way, so that the supraliminal current of consciousness becomes a prey of abnormalities that may arise in this matter of selection. At once all sorts of projections may occur—fanciful or bizarre, or growing more and more morbid even unto insanity. Please bear, then, these three elements of hysteria carefully in mind: 1. Psychical poverty. 2. Lack of cohesiveness. 3. Abnormalities of selection, as applied to the upper stream of consciousness.

The next morbid element, already implied, is an undue permeability of the threshold, so that much that should be above is drawn down into the subliminal life, or vice versa, as we shall presently reach. In other words, the morbid subliminal life attracts “scraps of supraliminal activity and thus deprives the supraliminal self of much of its control.” Hyperesthesias, paresthesias, due to loss or perversions of inhibitory power, or anesthetics and paralyzes (direct nerve loss), come under this head. That these disturbances are not permanent; “that hysterical anesthesia does not descend so deep as true anesthesia caused by nervous decay, or by the section of a nerve;” that the subliminal grasp, while

perverted, is never wholly gone; all these restrictions are proved in many ways. Moreover, they bear heavily in support of the argument. The strong presumptions to be drawn from deduced methods of treatment can not, of course, be touched upon here, but a clinical glance may be pardonable. Thus we know that the hysteric never hurts herself, never seriously bites her tongue; that there is a supervision, in fact, a subliminal supervision, exercised over her safety. It is also shown that "the anesthetic belts or patches do not correspond with true anatomical areas, such as would be affected by the actual lesion of any nerve." But "they follow what might be called fancy arrangements corresponding to rough popular notions of the body." For instance, continues Janet: "In hysterical blindness the anesthesia is not confined to the retina, but extends to the conjunctiva and even to the eyelids—that is to say, she has lost the use of the eye not in the physiological, but in the popular sense, as including all in the orbit."

Thus there have been demonstrated as elements of hysteria, (1) psychical poverty, (2) lack of cohesiveness, (3) abnormalities of selection, and (4) an undue permeability, or instability, of the threshold of consciousness. There may be some other considerations, for which we now have no time; substantially out of these four conditions does the malady arise. Suggestion, absent-mindedness, alternation, lowering of the mental level, with perhaps anesthesia, are its chief stigmata. Janet, with eye on the comprehensive generalization, groups them in the effective phrase, "retraction of the field of consciousness," which, in other words, is the direct and active resultant of the four psychological factors just described. In their totality, and in their many combinations, they present the varying phases of hysteria. This may at last be defined as an incipient disintegration of personality, with shiftings, sometimes tiltings, always irregularities, of the threshold, and just as "the study of zymotic disease deals mainly with instabilities in the constitution of the blood, so the study of hysteria," particularly from the clinical side, "deals mainly with instabilities of the threshold of consciousness."

So far in studying the morbid threshold we have been mainly concerned with what the subliminal self draws down; now we must see what diseased states below may send up. The process, in its simplest form, must begin as a psychical hypertrophy; perhaps, to quote again, with "something which is to the psychical organism no more than a boil or a corn is to the physical. In consequence of some suggestion from without, or of some inherited tendency, a small group of psychical units sets up a process of exaggerated growth which shuts them off from a free and healthy interchange with the rest of the personality."

Hence the fixed idea, and this, in a state of psychical poverty, like malign growths in general, must enlarge at the expense of surrounding parts. With, too, a disordered threshold, with abnormal selection, particularly in the upper stream, with possibly all the elements present, the fixed idea easily rises and becomes a positive factor in the supraliminal life. Many disturbances of conception as well as of innervation may ensue, and necessarily it is but a few steps further on to still deeper

morbidity. Well, indeed, it may again be said, is hysteria a beginning disintegration, and not very far off loom explosions, decay, or even insanity, though the connections seem often lost.

Out of the fixed idea naturally arises pain, because of the special notion or image which "presses into consciousness with undue or painful frequency." Moreover, the fixed idea disturbs all the healthy relations of life. There is also an element of brooding isolation, because the fixed idea is insistent, tyrannical, absorbing continually more of consciousness, like a parasite of insidious type; finally it may refuse to "interchange with the general current of thought." Of course, the fixed idea may be little more than "an indurated prejudice which hurts when pressed on," as in the analogy to a corn, already mentioned. Or, rising in importance far beyond either corn or boil, it may sometimes be like "a tumor, sometimes a cancer, or again (like) to an hypertrophied center of inflammation which sends its smart and ache through the organism."

The analogy might be carried much farther if circumstances permitted. Of the diagnosis of hysteria just a word. At best, we know well its difficulties; and one of these, since it bears on the pathology, tempts a bare mention. To-day we are swept along in an intense development, we are ever "breaking records" by efforts that are nearly always more of nervous than of muscular type—in short, our nervous economies are undergoing marvelous expansion. Necessarily such intensive growth is accompanied by some instability, as is every great change. Hence there is "a perturbation which masks evolution," which gives rise to "fancies and fanaticisms, bizarre likes and dislikes, excessive and aberrant sensibilities," such, indeed, as Lombroso has used to build his doctrine on, of the man of genius. But he was, at least in part, mistaken, and the healthier, if still unhappy, condition calls for wider recognition. The subject of treatment is here likewise out of place, yet it may be added that the results obtained in this branch of mental science are often brilliant, while in the technic employed is undoubted proof of the strange but law-abiding realm of the subliminal self, of the now unfolding mysteries of human personality.

To sum up in a few words: Out of psychical poverty, with lack of cohesiveness, with morbid selection, and an undue permeability of the threshold, with the psychological elements that make for health all awry, with inherited tendencies adding their stress when inhibitory centers are overwhelmed; with most or all of these elements in corrupt sway there follow such disturbances, first, of the life below, then above the threshold, that a psychic contraction ensues, and many lamps in Herzen's hall of perception go dead. In their place "vague dream-like streams of consciousness" come up from below to usurp control. And this condition may even reach the completer perversion that another personality seems to possess the body; or, finally, as hypnotic suggestion is to the subliminal life, so hysteria is to the ordinary consciousness; and in the analogies, in the similar laws, in even the seeming contradictions which both fields offer, is found abundant support for the late investigators.

DISCUSSION.

Dr. L. Harrison Mettler, of Chicago:—I regret exceedingly that I did not have the opportunity to read the Doctor's paper or to hear it in detail. He has, in a most careful and thoughtful manner, tried to give us some idea of what we mean by hysteria at the present time. He has gone into a field in which there is considerable discussion, but yet in which we are advancing along lines between a positive absence of knowledge and knowledge. There is no question that if we speak of hysteria to-day we have got to banish from our minds absolutely and positively all views that it is of an organic nature or of a nature in which the elemental tissues of the body represent an organic change. In other words, in the modern discussion of hysteria we are to leave the field of pathology—I mean ordinary pathology, the pathology of the microscope and of the chemical laboratory. In considering hysteria we are entering the psychic field.

This leads to the second point that I want to make, though it is an enormous subject to take up in five minutes, namely, that all the phenomena of hysteria are of a psychic nature, and must be interpreted entirely from a psychic standpoint. Of course, these phenomena do not represent insanity in the common acceptance of the term; but they indicate the border-line, and they are on that side of the line which is represented under the broad term of psychosis. We are thus brought to the subject of physiological psychology, not the old-time psychology and metaphysics, but modern physiological psychology. From the standpoint of modern physiological psychology most of the phenomena of hysteria can be correctly and properly interpreted. As I heard the end of the Doctor's paper, I judge he follows the teachings of Janet, since he refers to the contraction of the field of consciousness. I would like to be corrected if I misunderstood him. The contraction of the sphere of consciousness does not explain, however, all of the phenomena. It carries us a long way in our search for what hysteria is and it certainly does explain a large number of the phenomena.

One of the latest theories, and most popular, is that of Babinski, in which the author defines it in this way: Hysteria is that psychic manifestation in which symptoms are brought about by suggestion and banished by persuasion. He does not attempt to go any further. Whatever hysterical symptoms occur, they can be reduplicated or brought about always in an individual of unstable, temperamental, hereditary mental weakness, through suggestion. Suggestibility is the hysterical symptom. If any supposed hysterical manifestation can not be brought about by suggestion, very probably some organic trouble is connected or mingled with it. According to Babinski, that same manifestation or symptom, if purely hysterical in origin, can be made to disappear by persuasion. If it can not be so made to disappear, it is an indication, then, of organic disease.

I have never attempted to put the matter in such definite terms as Babinski has, but, like him, I have insisted upon the psycho-physiological instability as the cardinal sign of hysteria. There is no one symptom of the disease, whether produced through suggestion or otherwise, upon which we can rely in our diagnosis exclusively. Not even the narrowing of the visual fields. Hysteria presents all objective manifestations known to clinical medicine. Their instability and psychic interpretation alone indicate their hysterical origin. Given a paralysis, an anesthesia, or even a change of the fields of vision, such manifestations are in no way *per se* distinctive of hysteria. Only their instability, changeability and general psychic interpretation (Babinski's suggestibility and persuasion) establish their hysterical nature. All of which destroys the notion of there being any stigmata or fixed symptoms in this disease. Hysteria is merely psychic instability, so enhanced and modified by various hereditary, educational and other environmental factors as to confer upon it a pathological degree of abnormality.

The way the Boston school has of putting the same idea is that the outer characteristics of our inner reaction to modifications in the outer world indicate our personality. In an unstable condition of hysteria this is disturbed in a way it ought not to be. The personality is broken up; the mentality is shattered by

lines of cleavage and changed into entirely different forms of personality. This view I emphasize here merely to speak of one fact, that hysteria is, in its last analysis, a purely functional trouble. It is a disturbance in the normal interplay of the various afferent and efferent impulses which underlie and form the basis of our normal psychoses, our conscious and subconscious personality. Now, when this interplay, like a chord on a musical instrument, is disarranged, broken up, discordant, you have a failure of some things and an emphasis of other things. There is over-imagination, erythmism, and what not, with which you are all familiar, with here and there over-action on the one hand and diminution on the other. Thus paralysis and spasm, anesthesia and hyperesthesia are seen together. This interplay of irregular, unharmonie chords, so to say, may be the outcome of a multitude of disturbed functions, all of which result in an abnormal, broken personality for the time being, which personality is so unstable, variable and changeable that we denominate the state as one of disease and put it under the true name of hysteria.

Let me say, in conclusion, as I said before, that I can only in these few minutes give you what I believe to be the basis of hysteria from a psycho-physiological standpoint. I would like to emphasize the practical point, however, that everything which goes to adjust and restore this personality is useful in the management of hysteria. Certain surgical measures may be helpful in some cases. Psychic treatment, however, pure and simple, when the patient's body is free from disease changes, is all that is called for. In all forms of hysteria the basic treatment is psycho-therapy or the restoration of the personality of the individual and of her mental functions. In a certain sense, mind is co-extensive with the whole body. Although its center is in the brain, its normal action depends upon all the related organs being in a healthy condition. Hence all parts of the body, both physical and psychic, should be considered in the treatment of this wonderfully extensive disease.

Dr. Frank Billings, of Chicago:—I am not a nerve specialist. I have listened with a good deal of pleasure to this paper and also to the discussion of it by Dr. Mettler. I ought to know what hysteria is, but I do not. They have expressed it in terms I can not understand. I do not believe the general practitioner understands it from that point of view. My understanding of hysteria may be expressed in words something like this: Hysteria occurs in individuals who have not had and, therefore, have not a right physical as well as psychic development. In other words, there is something wrong in the progenitors as well as in themselves to start with; that expresses itself physically in other people, but does not express itself in a discoverable thing.

Then there is, as has been stated by both speakers, a psychic fundamental cause, and that expresses itself physically through the sensory and through the motor apparatus by various phenomena which it is unnecessary for me to outline. Back of all this is the expression which they have mentioned in technical terms, but which I will express as a morbid thing that is often better called devilishness. You see it in children and even in grown individuals where the right therapeutic treatment will set that devilishness at rest and some other physical effect that is making an impression upon the psychic part of the individual. I am sure that all of you practitioners have met with this sort of thing as I have. We have individuals brought to us suffering from hysterical phenomena, but when we come to analyze them we find, first of all, that inherited condition back of it, and then on top of it some purpose in many of the cases. Many a wife has fallen out of bed in an hysterical fit in order to make an impression on her husband to gain an end, or a child who has had hysterical hiccough which lasted for a long time in order to make an impression upon the parents. I have had many such cases, and by applying psycho-therapeutic measures have induced these patients to do things that they did not want their parents to understand. It seems to me there are four things to be borne in mind in considering this subject. First, the individual has inherited something that he should not; second, the psychic element, which is a fundamental one, expressed physically through the sensory and motor apparatus. These expressions are not physiological in a sense, in that the areas of anesthesia, the convulsive element, and all that, take part in it without a recognizable anatomic basis.

SERUM DIAGNOSIS OF SYPHILIS.*

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The investigation of Bordet and Gengou first directed attention to the possibility of determining the presence of antibodies by an indirect method known as complement deviation. By this means not only could bacteria antibodies be determined, but likewise their corresponding antigen. (The latter term is applied to any bacterium or substance which, when injected into an organism, gives rise to the formation of an antibody.) It was found by this method that organ extracts, albumins, peptones, etc., produce antibodies and that this could be shown *in vitro* by bringing together the antigen and its corresponding antibody in the presence of complement. The anchoring of complement was demonstrated by failure of hemolysis to occur in an added inactivated hemolysis system.

Wassermann and Bruck used this method to show the presence of bacterial substances in organ extracts and corresponding antibodies in sera of patients immunized against them. They employed this method with considerable success in typhoid, tuberculosis and meningitis epidemica. It occurred to Wassermann that this principle might be applied to demonstrate antibodies in the sera of syphilitics. With this in mind he with Neisser and Bruck¹ began a series of investigations. Their first experiments were made with monkeys. They obtained immune sera by injecting into monkeys extracts of syphilitic organs or lesions procured from syphilitic monkeys or human beings. They afterward mixed the immune serum of the prepared monkeys with the extract of syphilitic organs obtained from a deadluetie new-born, added complement, and found that in many instances a fixation of complement occurred, whereas it did not occur when mixed with similar extracts of normal organs, nor when normal serum was mixed with syphilitic or normal extracts. They looked on this as a means of demonstrating *in vitro* syphilitic antibodies in the blood serum and syphilitic substances in the organs ofluetics.

The first clinical application of this method was reported by Detre,² who found specific antibodies in the blood of two out of sixluetics he examined. The examination of 257 specific cases in the dermatologic clinic of Breslau reported by Neisser, Bruck and Schucht³ showed positive results in only 19 per cent. Their experiments were conducted also with a view of demonstrating antigen, which they found in extracts of blood corpuscles ofluetics in a much larger percentage. The above results never have been quite clear, as they were entirely out of accord with the results of other investigations and likewise of Bruck's⁴ later work in company with Stern.

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1. Wassermann, Neisser and Bruck: *Deutsch. med. Wchnschr.*, 1906, xxxii, 745.
2. Detre: *Wein. Klin. Wchnschr.*, 1906, xix, 619.
3. Neisser, Bruck and Schucht: *Deutsch. med. Wchnschr.*, 1906, xxxii, 1937.
4. Bruck and Stern: *Deutsch. med. Wchnschr.*, 1908, xxxiv, 459.

Wassermann and Plaut⁵ examined the spinal fluid of forty-one progressive paralytics and obtained a positive reaction in 79 per cent.; nineteen controls, whose spinal fluid was examined, all gave negative results. Schutze⁶ examined twelve tabetics and found antibodies in the spinal fluid of eight. Morgenroth and Stertz⁷ obtained a positive reaction with the spinal fluid of eight paralytics and a negative reaction with the lumbar fluid of eight control cases. Marie and Levaditi⁸ confirmed the findings of Wassermann and Plaut by reporting a positive reaction with the spinal fluid of 73 per cent. of thirty-nine paralytics, four out of five tabetic paralytics, and two out of four tabetics. They had negative results in a number of controls among cases with diseases of the nervous system not depending on syphilis. These investigations served to elinck the etiologic association of progressive paralysis and tabes with syphilis.

Although Wassermann first believed this test to be a reaction between luetic antibodies and syphilitic substances contained in the luetic organ extract, it became evident to those working with the reaction that this was not the case. Attention was attracted to this by Marie and Levaditi and confirmed by Fleischmann, Michaelis and others. Levaditi observed that with normal liver extract some delay in hemolysis occurred and that when the normal extract was used in larger quantities a strong anti-complement reaction occurred. A parallel anti-complement reaction was not noticed when the luetic and normal extracts were used in the same proportions.

Levaditi, however, considered the reaction, in view of his negative results in control cases, specific for syphilis. Weil,⁹ following the observation of Levaditi, attacked the specificity of the test. He experimented with extracts of tumors (sarcomas) which he used instead of luetic liver extract and obtained a positive reaction with syphilitic sera the same as had been obtained with extracts of normal organs when used in similar quantities. Kraus asserted that he, with Volk, had reported this observation with regard to normal organ extracts before Levaditi. Michaelis¹⁰ confirmed the work of Levaditi, and held the reaction specific for syphilis. Landsteiner, Müller and Pötzl,¹¹ in their investigations, used extracts of guinea-pig liver as antigen. They compared the results of this in the reaction with luetic liver extract and found that they coincided.

Since it has become clearly evident that the active constituents of the extracts concerned in the reaction do not consist of luetic substances, to wit, *Spirochæta pallida* of Schaudinn, numerous experiments have been made and are still going on to determine their identity. Wassermann,¹² with Porges and Meier, Landsteiner, Müller and Pötzl,¹³ Levaditi and

5. Wassermann and Plaut: Deutsch. med. Wehnschr., 1906, xxxii, 1769.

6. Schutze: Berl. klin. Wehnschr., 1907, lxiv, 126.

7. Morgenroth and Stertz: Virchow's Arch. f. path. Anat., 1907, clxxxviii, 166.

8. Marie and Levaditi: Ann. de l'Inst. Pasteur, 1907, xxi, 138.

9. Weil: Wehnschr., 1907, xx, 527.

10. Michaelis, L.: Berl. klin. Wehnschr., 1907, No. lxiv, 1103.

11. Landsteiner, Müller, and Pötzl: Wien. klin. Wehnschr., 1907, xx, 1565.

12. Wassermann: Berl. klin. Wehnschr., 1907, lxiv, 1599.

13. Landsteiner, Müller and Pötzl: Wien. klin. Wehnschr., 1907, xx, 1564.

Yamanouchi,¹⁴ independently of each other, made extracts of syphilitic and normal liver with alcohol and found that such extracts contained the antigen and served for evoking the reaction. Landsteiner used alcoholic extracts of guinea-pig heart and showed that results were obtained similar to those obtained with luetic liver extract. This observation of Landsteiner, Müller and Pötzl is of great practical importance and will prove of immeasurable advantage in promoting the use of the Wassermann reaction because of the readiness with which guinea-pig's heart can be secured and prepared.

In view of its solubility in alcohol, Wassermann thought that the active constituent must be closely allied to the lipid bodies. With this in mind, Porges¹² and Meier, under Wassermann's direction, experimented with lecithin, and, in fact, found that it caused a deviation of complement with luetic sera. This has led to investigations with other substances, cholesterin, glycogen, sodium taurocholate and glyco-cholate, vaselin, etc. Levaditi found lecithin and the sodium salts of the bile acids to work satisfactorily. Fleischmann¹⁵ found cholesterin more satisfactory, compared with luetic liver extract, than the lecithin.

I have employed both lecithin and cholesterin, using guinea-pig heart extract as control in the reaction with luetic sera. My experience is as follows: I examined eleven syphilitic sera with extract of guinea-pig heart and with lecithin. Eleven were positive with the extract and ten with lecithin. The intensity of the reaction with the same sera varied somewhat as between the extract and lecithin. In six cases the reaction resulted alike. In two the reaction with extract was more marked and in two more marked with lecithin. Seven syphilitic sera were examined with both extract of guinea-pig heart and cholesterin. Seven were positive with extract and six with cholesterin. The result of reaction was alike with both in four cases. In two cases the extract gave a more marked reaction than cholesterin.

Grosz¹⁶ asserted, on the basis of work by Volk and himself, that neither cholesterin nor glycerophosphoric acid could replace the alcoholic extracts. They precipitated from such extracts the fatty acids by adding lead acetate and ammonia, the lecithin remaining in solution, and used this solution with satisfactory results in the reaction. In the search for the active chemical constituent of the extracts Sachs and Altmann¹⁷ used sodium oleate as antigen and obtained positive reactions with syphilitic sera. Continuing their experiments, Sachs and Altmann¹⁸ found that they could prevent the reaction between luetic sera and alcoholic extract of luetic liver by the addition of an appropriate dilution of sodium hydrate, and likewise in some instances could convert a negative reaction between normal sera and luetic extract into a positive reaction by the addition of properly diluted hydrochloric acid. They came to the conclusion that either syphilitic sera differentiate themselves from other sera

14. Levaditi and Yamanouchi: *Compt. rend. Soc. de biol.*, 1907, lxii, 741.

15. Fleischmann: *Berl. klin. Wehnschr.*, 1908, lxxv, 490.

16. Grosz: *Wien. klin. Wehnschr.*, 1908, xxi, 206.

17. Sachs and Altmann: *Berl. klin. Wehnschr.*, 1908, lxxv, 494.

18. Sachs and Altmann: *Berl. klin. Wehnschr.*, 1908, lxxv, 699.

by a lessened alkalinity, or that (which they considered more likely) the special quality of the syphilitic sera is to be sought in another factor, for the reaction of which, with the lipoids, the diminished alkalescence is necessary.

Following close on the experiments with lecithin as antigen in the syphilis reaction, Porges,¹⁹ in company with Meier, worked out a modification of the serum diagnosis for syphilis. They found that luetic or metaluetic sera precipitated lecithin from solution. The test consists in mixing equal parts of a 0.2 per cent. suspension of lecithin in distilled water and serum of a suspected patient in a test-tube and incubating for five hours. If it is a syphilitic sera, a flocculent precipitate forms. Kraus, in discussing the subject at the time, asserted that the specificity of the Porges test was supported by the experiments of Eisler. Nobl and Artz²⁰ shortly thereafter published their results of the Porges reaction. They examined eighty-three cases and found a positive reaction in 81 per cent. of them.

Fritz and Kren's²¹ investigations of the Porges reaction showed that while it was positive in 63 per cent. of fifty-one cases of manifest syphilis, it was also positive in 65 per cent. of seventeen cases of tuberculosis of the lungs and skin that they examined. Using sodium glycocholate in place of lecithin in twenty-six cases of syphilis they obtained positive results in 65 per cent., while they obtained only 18 per cent. of positive reactions with this salt in tuberculosis. The complete shattering of the specificity of this test is found in the report of Eisler,²² whose results Kraus²³ had apparently interpreted when he quoted them as sustaining the specificity of the Porges reaction. Eisler reports that precipitating and non-precipitating animal sera give the lecithin but not the Wassermann reaction, and that sera of tuberculosis cases give it in about the same proportion as cases of syphilis.

Porges and Meier²⁴ have recently published the results obtained in the examination of 190 syphilitic sera by means of the watery extract, the alcoholic extract of luetic liver, the lecithin suspension, and by their method of precipitation with lecithin. They found the results of the lecithin reaction to run parallel to those obtained by the complement fixation method. Another modification in the serum diagnosis of syphilis was presented by Klausner,²⁵ who reported that on mixing 1 part of serum with 3 parts of distilled water and allowing it to stand at room temperature a flocculent precipitate formed in from one to fifteen hours. In a subsequent report by Klausner²⁶ he states that in his controls he obtained positive reactions in five severe lupus cases, five typhoid cases and three cases of pneumonia. The reaction depends on the precipitation

19. Porges: *Wein. klin. Wehnschr.*, 1908, xxi, 206.

20. Nobl and Artz: *Wien. klin. Wehnschr.*, 1908, xxi, 287.

21. Fritz and Kren: *Wien. klin. Wehnschr.*, 1908, xxi, 386.

22. Eisler: *Wien. klin. Wehnschr.*, 1908, xxi, 422.

23. Kraus: *Wien. klin. Wehnschr.*, 1908, xxi, 206.

24. Porges and Meier: *Berl. klin. Wehnschr.*, 1908, lxxv, 731.

25. Klausner: *Wien. klin. Wehnschr.*, 1908, xxi, 213.

26. Klausner: *Wien. klin. Wehnschr.*, 1908, xxi, 363.

of globulin which is increased in infectious diseases. It would seem to lack specificity for syphilis.

Parallel tests carried out by me with the Wassermann, Porges and Klausner reactions gave the following results in nine cases of syphilis:

	+	—
Wassermann reaction.....	9	0
Porges	6	3
Klausner	2	7

Although we are apparently closer to a solution of the theoretic basis of the Wassermann reaction, any final statement at this time would seem, from the experimental results so far recorded, unwarranted. It would appear from the evidence at hand that there is some substance in the sera of syphilitics not contained in non-syphilitic sera which has an avidity for certain substances contained in luetic and normal organs, and for certain lipid bodies, as lecithin, cholesterolin, etc. (Wassermann). After this extended consideration of the development and theoretic basis of the serum reaction I shall take it up in its practical aspect.

The specificity of the test is a matter of paramount importance from a practical standpoint. Fortunately, the statistical proof now before us from different and reliable sources is sufficient to establish the specific character of the reaction. In practically every case the controls examined by various investigators have proved negative. Even Weil, who attacked the specificity of the reaction in the first instance, and later, with Braun, the specificity of the antigen, was not able to secure the reaction with non-syphilitic sera. At the same time their results with syphilitic sera bespeak its specificity.

Following are some of the results of examinations recorded: Detre² obtained positive reactions with the sera of 2 out of 6 luetics. Wassermann and Plaut⁵ examined the spinal fluid of 41 paralytics; 78 per cent. of the reactions were positive. They also examined 19 controls, finding all negative. Morgenroth and Stertz⁷ examined the spinal fluid of 17 paralytics and meta-syphilitics; 53 per cent. of the reactions were positive, in the spinal fluid of 8 controls the findings were negative. Marie and Levaditi⁸ examined the spinal fluid of 39 progressive paretics; 74 per cent. of the reactions were positive, in 5 tabetic paralytics 80 per cent. of the reactions were positive. Citron²⁷ examined 108 cases of evident or suspected syphilis, 74 per cent. of the findings were positive. Fleischmann and Butler²⁸ examined 41 syphilitics and suspected luetics, in 70.7 per cent. of the cases the findings were positive. Michaelis¹⁰ examined 12 cases of certain and suspicious lues, 75 per cent. of the reactions were positive, of 23 controls 2 reactions were positive. M. Wassermann and Meier²⁹ examined 39 suspicious cases, 69 per cent. of the reactions were positive. Schutze⁹ examined 12 cases of tabes, 75 per cent. of the reactions were positive. Meier³¹ examined 118 cases of lues,

27. Citron: *Deutsch. med. Wehnschr.*, 1907, xxxiii, 1165.

28. Fleischmann and Butler: *The Journal A. M. A.*, 1907, xlix, 934.

29. Wassermann, M., and Meier: *Deutsch. med. Wehnschr.*, 1907, xxxiii, 1287.

30. Fischer and Meier: *Deutsch. med. Wehnschr.*, 1907, xxxiii, 2169.

31. Meier, G.: *Berl. klin. Wehnschr.*, 1907, xxxiii, 1636.

81.7 per cent. of the reactions were positive, in 21 controls all findings were negative. Fisher and Meier³⁰ examined 114 syphilitics, 83.7 per cent. of the reactions were positive. Kroner³² examined 40 cases of suspected lues, 75 per cent. of the reactions were positive, in 10 controls all the findings were negative. Musham³³ examined 80 cases, obtained positives results in 48; all of the latter proved syphilitic by examination or as the result of the treatment. Karewski³⁴ examined 18 suspected cases, all the reactions were positive. Weil⁹ examined 9 luetics, 88 per cent. of the reactions were positive. Weil and Braun³⁵ examined 15 meta-syphilitics, 80 per cent. of the reactions were positive, of 7 controls all the findings were negative. Michaelis and Lesser³⁶ examined 63 syphilitics and suspected syphilitics, 74 per cent. of the reactions were positive. Müller examined 197 cases of syphilis, 94 per cent. of the reactions were positive; of 500 controls 97 per cent. of the reactions were negative. Blaschko³⁸ examined 270 luetics; 87 per cent. of the reactions were positive.

The varying percentage of positive reactions obtained depends on the class of cases examined. In the statistics of some writers, cases with manifest symptoms dominate; in others, meta-syphilitic and latent cases make up a good share. The uniformly negative reaction found in controls and the large percentage of positive reactions in luetic and suspiciously luetic cases not only establish the specificity but likewise the reliability of the test. On these two points the clinical value of any blood test depends, and when they have been fulfilled, as with the serum diagnosis of syphilis, it is evident that its clinical value is settled as a diagnostic test.

Right here attention should be directed to what a positive reaction implies and what may be interpreted from it. A positive reaction only indicates that the patient has syphilis, whether acquired or inherited. Whether or not this systemic infection is the cause of a pathological change in some organ or tissue must of necessity be learned from other clinical facts. In other words, a positive reaction may be valued as an indication of systemic infection and not used decisively in making specific organ diagnosis. Unfortunately, the performance of the reaction itself is attended with difficulties which may discourage many who undertake it. Some of these difficulties have been removed by the employment of alcoholic extracts, as the watery extracts were decidedly unstable.

The substances employed in the reaction and their preparation are as follows:

1. *Blood Serum of Suspected Luetic.*—This is obtained by collecting blood from vein or finger, allowing it to clot; remove the separated serum; centrifuge to clearness; pipette off into a test tube, and inactivate at 56° C. for one-half hour.

32. Kroner: Berl. klin. Wehnschr., 1907, xxxiv, 149.

33. Musham: Berl. klin. Wehnschr., 1908, xxxiv, 14.

34. Karewski: Berl. klin. Wehnschr., 1908, xxxiv, 15.

35. Weil and Braun: Berl. klin. Wehnschr., 1907, xxxiii, 1572.

36. Michaelis and Lesser, F.: Wien. klin. Wehnschr., 1908, xxi, 289.

37. Müller: Wien. klin. Wehnschr., 1908, xxi, 282.

38. Blaschko: Berlin klin. Wehnschr., 1908, xxxiv, 694.

2. *Organ Extract*.—Take luetic liver or guinea-pig heart and rub up fine with sand in mortar, add 95 per cent. alcohol in proportion of 50 c.c. to gram of guinea-pig heart. Place in flask and heat in water bath at 60° C. for an hour. Filter through paper filter and keep at room temperature ready for use.

3. *Complement*.—Guinea-pig serum is used. Collect blood from heart of guinea-pig into sterile flask; allow to coagulate and remove the separated serum. Keep on ice ready for use.

4. *Hemolytic Serum*.—Inject rabbit with 5 per cent. mixture of washed sheep's blood corpuscles every week or ten days for four or five times. A week or ten days after last injection the blood may be removed from heart, serum collected, inactivated, and kept on ice ready for use.

5. *Washed Sheep's Blood Corpuscles*.—Sheep's blood is obtained from the carotid of a sheep in a sterile flask and defibrinated by glass pearls. It is washed with salt solution two or three times and then mixed with salt solution either in the proportion of 5 per cent. or 50 per cent., according as one adheres to the c.c. plan or drop method for measuring quantities.

As the serum reaction is usually performed, all constituents of test are calculated in fractions of a c.c., and the quantities so diluted with salt solution that each c.c. of dilution represents the desired quantity. The suggestion of Landsteiner, Müller,³⁶ and Pötzl greatly simplifies this and takes far less material. They measure the proportion of ingredients to each other by drops. Before the actual performance of a reaction it is necessary to test the material to be used.

1. To standardize the amboceptor. 2. To see that extract alone does not bind complement, or hemolyze sheep's corpuscles. 3. To see that the blood corpuscles have not hemolyzed. 4. To see that the complement is active.

The standardizing of amboceptor is effected by determining what dilution of amboceptor in a drop dose will dissolve in a half hour in an incubator, one drop of 50 per cent. suspension of sheep's corpuscles with one drop of complement; a definite amount of salt solution, 10 drops, is added as diluent. Twice the strength of this is used in test.

It is desirable to test the extract before each reaction is undertaken to see that it alone does not delay the hemolysis. With this point in view, a drop of extract and one of complement, in ten drops of salt solution in test tube are incubated one-half hour and then amboceptor and blood corpuscles are added. Hemolysis should occur within the half hour. If the blood corpuscles have stood for some days, they may have hemolyzed as may be judged by color of supernatant fluid. Complement should not be used after third day. When all ingredients used in the test are suitable, the performance of the reaction is facilitated and never disappointing. It is necessary to introduce a few known syphilitic sera and at least as many normals in every test, these serving as controls for suspected sera.

In performing the reaction, each serum is tested with and without the extract to see if in the first instance they inhibit the hemolysis and

in the second instance that the serum alone does not do so. Occasionally the serum alone will hasten the hemolysis over the control in which the complement, amboceptor and blood corpuscles are contained, because of the fact that some sera possess a slight amount of amboceptor for sheep's blood corpuscles (Michaelis¹⁰).

The performance of the reaction is as follows:

For each serum two small test tubes are required and several tubes for controls of the materials as above, these being repetitions of the tests of material made before beginning the reactions. Add 10 drops of salt solution to each tube. Add a drop of serum to each of the two tubes used for a given serum. Then add 2 drops of organ extract to one of them. To one of the control tubes add 2 drops of organ extract. To all add a drop of complement. Shake tubes and place in incubator for one hour. Remove and add a drop of standardized amboceptor and 1 drop of 50 per cent. suspension of sheep's blood corpuscles. Incubate for an hour and a half and then read the result. All controls with sera alone, with normal sera, and with organ extract alone, should be hemolyzed. If in tubes containing suspected sera and organ extract, hemolysis has occurred, they are regarded as negative. Those containing sera and organ extract, in which hemolysis has not occurred at all or only incompletely are positive.

Uncertainties not infrequently arise in reading the result of the reaction. These are invariably traceable to a failure to test materials used in the reaction, failure of sufficient controls on the material, or of control sera, both syphilitic and non-syphilitic. I have examined 125 cases, 20 of these were controls in whom syphilis could be, from examination and history, reasonably excluded. Among the control cases were typhoid, pneumonia, neurasthenia, etc., all of whom reacted negatively.

Various classifications are used in reporting cases by different authors. I have grouped mine under two main heads, with subdivisions. These include:

1. Cases with manifestations of or suspicious of syphilis, and cases giving a history of syphilis.

2. Cases with lesions of the nervous or cardiovascular systems in which syphilis was either acknowledged, denied, suspected or unsuspected.

Of the first division there were 61 cases.

1. Primary stage, either with initial lesions or before appearance of secondary symptoms, 4 cases; 4 positive.

2. Secondary stage, 25 cases; 24 positive, 1 negative.

3. Tertiary stage, 17 cases; 16 positive, 1 negative.

4. Latent cases, 15; 8 positive, 7 negative.

Division 2: Number of cases, 44; positive reaction in 75 per cent.; 40 per cent. of these had no knowledge of infection or denied same.

Taking up the first group of cases it will be observed that of the cases with luetic manifestations, 46 in number, 93 per cent. gave a positive

NOTE.—The examinations of fifty of the cases herewith reported were made with the assistance of Dr. J. P. Long, Birmingham, Alabama, to whom I wish to express my sincere thanks.

reaction. This coincided closely with the recent publications already cited for this class of cases. Some variations in percentages will necessarily result because of the method of classification used by different authors, some of whom have classed meta-syphilitic cases among the syphilitic with manifest symptoms, for which there is undoubtedly much justification, in view of the recent light thrown on the subject by this test.

Of interest to the syphilologist is the result of this reaction in the primary stage. In a large percentage of cases with the initial lesion, this reaction is found positive. This is of great value, not only in analyzing a venereal infection, to-wit: chancroid with possible chancre, urethral chancre, etc., but it is of immense advantage from a therapeutic standpoint, deciding the diagnosis in many instances at once, in case any doubt from a clinical diagnosis point of view existed and indicating the therapeutic course. Attention should be directed to the advantage of this test in syphilophobia. Of the latent cases, 15 in number, 54 per cent. gave a positive reaction. This forms one of the interesting phases of the syphilitic question developed by this reaction. Some of these cases, which number among them those that have been well treated and others indifferently treated, have been free from symptoms for a number of years.

The question as to whether the latent cases that are negative to the reaction may be regarded as safe and that those that give a positive reaction are in danger of a recurrence, is of great practical importance, and at the same time presents difficulties of solution not easily overcome at this time. Recently Fleischmann¹⁵ has reported three cases that did not give the reaction, but who within a few months had a recurrence of symptoms. He does not state how long it was from the time of initial lesion. The following interpretation of a negative result of the test may be considered as according with our present knowledge. The absence of reaction, even when symptoms are lacking, does not necessarily mean that the patient is cured, but simply that his infection is quiescent, but it gives no assurance beyond this point.

While it may be rash to express an opinion as to the existing anatomic condition or destiny of latent cases free from symptoms for a number of years that give a positive reaction, the following statement of Lesser, made a number of years ago and recently quoted by Blaschko,³¹ may be of some interest and also of value. Lesser stated that certain diseases occur in late syphilis, besides the so-called tertiary manifestations, which are not exactly to be reckoned in the gummatous affections, diffuse changes which develop slowly in apparently healed luetics, and which also under circumstances can lead to death. He was able to find in about 9.5 per cent. of all autopsies investigated by him, signs of such specific disease processes, which during life had produced no symptoms, at least were not generally diagnosed as syphilis, to-wit: aortitis, etc.

On statistics collected by Blaschko and Jacobsohn, Lesser estimated that about 20 per cent. of the male population of Berlin were infected with syphilis, and he maintained that the 9.5 per cent. which had shown evidences of specific processes, postmortem represented 50 per cent. of those earlier infected with syphilis. Blaschko and Jacobsohn, from a

study of insurance statistics, came to the conclusion that in one-third of the cases of syphilis, death could be traced to the disease. We therefore have inluetics, syphilis as a cause of death in about 33 per cent. of the cases, demonstrable changes in the organs of deadluetics, however, in 50 per cent. of the cases, which latter percentage coincides with the percentage of positive reactions found in latent cases of syphilis.

While it would be unjustifiable at this time to draw any conclusions from this coincidence, it would seem a safe proposition that cases which give a positive reaction, even though they may not show evident manifestations, should receive serious consideration for treatment, because irrespective of the above statement of Lesser, it is observable in a certain proportion of the cases under treatment that a diminution or disappearance of the reaction will occur. Just what the latter indicates at this time with regard to cure or abeyance of the infection, no one is prepared, supported by statistics, to state.

Fleischmann and the writer in our first publication on this subject had made such observations in cases under treatment coinciding with Citron's results. On the other hand, we had cases which did not respond within the same period of time. Müller³⁶ and Blaschko³⁷ and Citron found a disappearance or diminution of the reaction in a third of their cases under treatment. In this matter the factor of time must be of importance; one patient may require a much more prolonged treatment (as is the case clinically with regard to disappearance of symptoms) to bring about a negative reaction, than is needed in another case. This point has apparently not received any attention, namely, that the factor of time is not defined as it should be in estimating the effect of treatment on the reaction. Just what effect antiluetic treatment may have on a patient to influence the serum reaction is a matter of conjecture.

While examining sera, I tried to determine the effect of a 1-10,000 mercuric chlorid solution on various substances used in the reaction. No effect was produced on complement, amboceptor or blood corpuscles in whatever combination used. It exerted anything but a uniform action where it was used in the reaction with the extracts. This may be best shown by presenting results of examinations by extracts without and with mercuric chlorid solution.

The result only is recorded under headings — extract and extract and mercuric chlorid solution. The numbers of + signs express the intensity of the reaction. I have included results of examinations with lecithin and cholesterin.

Extract.	Cholesterin.	Extract and Mercuric Chlorid Solution.	Extract.	Lecithin.	Extract and Mercuric Chlorid Solution.
2+	1+	3+	2+	1+	1-
1+	1+	—	1+	1+	1+
1+	—	—	1+	—	—
4+	2+	2+	4+	4+	4+
1+	1+	1+	1+	2+	—
1+	1+	2+	1+	2+	1+
2+	2+	—	1+	1+	1+
			1+	1+	1+
			3+	2+	1+
			3+	3+	3+
			3+	3+	—

Reaction with extract and mercuric chlorid solution equal to reaction with extract alone 7 times.

Reaction with extract and mercuric chlorid solution stronger, 2 times.

Reaction with extract and mercuric chlorid solution weaker, 2 times.

Reaction with extract and mercuric chlorid solution abolished, 7 times, whereas, with extract from 1 + to 3 +.

Mercuric chlorid solution abolished the reaction in 39 per cent. of cases.

Concerning the second class of cases.

Class B.—Following is a tabulation of the diagnosis and result of reaction:

(a) Brain syphilis, 5 cases, all gave + reactions, two of these denied luetic infection.

(b) Cerebrospinal syphilis, 1 case +, gave history of lues.

(c) Hemiplegia, 9 cases, 7 +, 2 —. Six gave history of specific infection, 5 of whom gave + reaction. Two, no specific infection obtainable, gave — reaction. One denied infection and gave + reaction.

(d) Spinal lues, 3 cases, 2 gave + reactions. One of these denied infection. Third gave history of infection. Reaction was negative.

(e) Transverse myelitis. One + case acknowledged syphilis. One — case denied infection.

(f) Case of uncertain diagnosis giving a history of syphilis proved positive to the test.

(g) Tabes, 15 cases, 8 +, 7 —. Of the + cases 7 acknowledged lues, one denying it. Of the 7 negative cases, 2 gave history of syphilis, 1 denied infection. From history of 3 others, previous infection was strongly probable. In 1 no record was obtainable.

(h) Epilepsy. Two cases in women, developed in middle life, reaction +.

(i) Neuritis, 3 cases, 2 of whom denied syphilis. All gave + reaction.

(j) Vascular diseases, 4 cases; gave + reaction. A case of intermittent claudication that denied lues showed a + test.

In the tabes cases examined by me, the percentage of positive reactions is somewhat low. This class of cases are so often subjected to antiluetic treatment that it is more than probable that this is the cause of failure of reaction in some of them. Schutze found 8 of 12 cases positive; Citron⁸ reported 13 of 15 cases positive; Fleischmann,¹⁵ 13 of 18 cases.

CONCLUSIONS.

The serum reaction for syphilis is specific.

It is found positive in from 90 per cent. to 98 per cent. of all cases with syphilitic manifestations.

It is found positive in 50 per cent. to 60 per cent. of latent cases.

It is found positive in from 70 per cent. to 80 per cent. of meta- and para-syphilitic diseases.

The reaction is in many cases influenced by treatment of the patient, and it is not improbable that this number would be greatly increased if

the reaction were pursued throughout prolonged treatment. This has recently been confirmed by Lesser, who found that in practically every case treated long enough, the reaction disappeared.

A positive reaction indicates activity of the specific virus, and is an indication for antisyphilitic treatment.

While a positive reaction indicates syphilis, a negative reaction does not have an equal negative value.

It is diagnostic of a systemic infection, whether acquired or inherited, and not an organ diagnostic measure.

The reaction will be found of enormous advantage in differential diagnosis in every department of medicine, and as an index for treatment.

In conclusion, I wish to express my gratitude to my hospital colleagues, Drs. W. A. Pusey and Sidney Kuh, who kindly extended the courtesy of their cases for examination.

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THE RESPONSIBILITY OF THE GENERAL PRACTITIONER IN CASES OF STRABISMUS IN CHILDREN.*

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Two years ago the author addressed a communication to the Board of Education in which attention was directed to the baneful results of neglected strabismus, the brilliant results attained when it is treated in its first stages, the opportunities that the teachers of the primary grades had for detecting the first manifestations of the anomaly, and the method for dealing with such cases. The penalty of delay was dwelt upon and emphasized, and that the amblyopia of the squinting eye persisted in the majority of cases after the apparent deformity had been remedied by a successful operation, was set forth in the clearest manner. Hence the obvious duty of the board, to instruct the teachers, especially those of the primary grades, to report to the proper authority all children whose eyes did not seem to behave in the ordinary manner. The committee that had charge of such matters in due course of time informed me that they considered the matter very important, and that it would be brought before the board very soon. Unfortunately all this took place at a time when the board was having troubles of its own, necessitating all its energies for the preservation of its integrity. The matter has never been brought up, but I still live in hopes that it will be some day.

Meanwhile our public dispensaries, and not infrequently our private offices continue to furnish us with innumerable cases of squint where the defect has become thoroughly established, the squinting eye has become blind, and nothing remains for us to do but attempt to re-establish parallelism of the visual axes by means of glasses and a long.

* Read before the North Side Branch of the Chicago Medical Society, Jan. 3, 1908.

tedious course of treatment, occasionally followed by an operation, without the restoration of sight in the eye that originally squinted. Of course in some cases it is possible to improve the vision, but in the majority of instances the patient and parents tire of the treatment, become discouraged and decide to be satisfied with the improved appearance.

That anything short of cure, that is, parallelism of the visual axes with binocular single vision, is to say the least a makeshift and a poor substitute, is obvious. But this is not all. We have here a perfectly well-known anomaly, presenting a perfectly regular course, with a perfectly definite result, obeying well-known laws, usually corrigible in its early stages; which stages present perfectly definite and easily recognizable phenomena leading to a well-known and inevitable result, viz., the practical loss of vision in one eye. The number of real cures aggregate a small percentage of the cases. Why? Because the oculist very rarely has the opportunity of seeing these cases until it is too late to preserve binocular vision, or they are so far advanced that it is impossible to restore sight in the squinting eye. The importance of getting these cases under treatment at the earliest possible moment is too obvious to need further discussion, but it will be interesting at this point to quote a few statistics compiled by Worth, who has devoted much time to this subject, and to give a brief résumé of the nature of squint and the history of its treatment.

AGE AT WHICH SQUINT FIRST APPEARS, IN 1,017 CASES OF UNILATERAL SQUINT AND 178 OF ALTERNATING VARIETY.

UNILATERAL VARIETY.		Cases.
Before 1 year.....		134
Between 1 and 2 years.....		186
Between 2 and 3 years.....		247
Between 3 and 4 years.....		189
Between 4 and 5 years.....		113
Between 5 and 6 years.....		73
After 6 years.....		75
ALTERNATING VARIETY.		
Before 1 year.....		61
Between 1 and 2 years.....		34
Between 2 and 3 years.....		23
Between 3 and 4 years.....		29
Between 4 and 5 years.....		11
Between 5 and 6 years.....		6
After 6 years.....		14

It is apparent from these tables that squint is a deformity that invariably commences in early childhood and runs through its several phases before the child has reached its seventh year. By this time the squinting eye has become so amblyopic that it is very difficult to restore the vision. It will be noticed that no allusion is made in the following pages to alternating strabismus. The reason is that in this variety in which either eye is used quite at random for fixation there is slight, if any, loss of sight, and therefore the treatment is really directed to bring

about physiological conditions and improve the appearance, but not to save sight.

There are few subjects in the history of medicine that present a more interesting evolution than that of squint. Nor have we anywhere an example of brilliant empiricism so influencing the minds of scientists that they were willing to follow blindly in the wake of man, who, knowing absolutely nothing of the causes of a deformity, devised a brilliant operation which, judging from their standpoint, that of appearances, for a time at least corrected the defect. Stromeyer and Dieffenback judged correctly from appearances. An eye turned in. The internal rectus presided over that function; therefore, in order to straighten the eye the internal rectus must be severed, and severed it was, with the most brilliant results for the time being. It did not matter that the eye which once turned in, after pausing for a time in the normal position, gradually wended its way toward the outer canthus. This was an unforeseen consequence and could not be helped.

So irresistible was the influence of this brilliant operative procedure that it actually held back the progress of scientific investigation on the subject, and even after such men as Helmholtz, and more especially Donders, by their brilliant researches into the realm of physiological optics, had proved that strabismus was but a natural consequence of certain anomalies in the formation of the eyes and the muscles were at fault only as servants of their nerves; a large proportion of the ophthalmologists clung to the old empirical method and even to-day one is occasionally found who, with slight modifications, follows in the steps of the two fathers of tenotomy.

The laity, always ready to accept the things that most smack of the marvelous, took kindly to that procedure which enabled them to receive from the hands of the oculist the child that a few moments before had been surrendered a cross-eyed fright, a handsome, straight-eyed darling, little realizing the wall-eyed future that awaited it, or the fact that waiting for the happy operative moment had caused irreparable blindness in the deviating organ.

What then is the nature of squint? In order to better understand this matter I will for a moment touch on the technical side of the question. When the normal eyes are fixed upon some distant object the two images are focused exactly on the yellow spots of the two eyes, and the visual axes are parallel. If now the object is gradually brought closer to the eyes the muscle of accommodation begins to act in order to keep the focus clear and distinct, and the internal recti begin their function of turning the eyes in toward the object, so that the images may still fall on the two yellow spots. Therefore, the function of accommodation and that of convergence are intimately associated. Thus if we accommodate to a point situated one meter from the eye we use one diopter of accommodation and we converge to one meter (one meter angle). If we look at a point 25 centimeters from the eye we accommodate 4 diopters and converge 4 meter angles.

Now the hypermetrope has to accommodate in order to see distinctly, even for objects at a long distance. For instance, a hyperope of 3 D. in order to see an object at a great distance has to accommodate 3 D. With this accommodation is associated a convergence of 3 meter angles, a point about 33 centimeters in front of the eyes. It is obvious then that either he has to give up his accommodation and not see distinctly or else so manage things as to disassociate his convergence from his accommodation, otherwise the distant object would appear double. Fortunately many persons are able to disassociate their convergence to a moderate degree from their accommodation, but others find it impossible to do so, but to a very limited extent the latter are ready victims for squint.

You can readily follow now the struggles of the young child with hypermetropic eyes. Inherited instinct leads him to seek distinct images of the surrounding objects, accommodation comes into play, associated convergence follows. By inherited instinct double images are abhorrent, the struggle ensues. By some chance one of the eyes turns in a little too much, while the other looks directly at the object, thus bringing the image of the turned in eye on a less sensitive region of the retina. The turned in eye is converging for the two. The first step is taken. It is repeated; periodical strabismus is the result. Gradually the image of the deviating eye becomes less and less distinct. Over-convergence becomes more frequent. Finally the eye habitually turns in. Amblyopia becomes more marked and strabismus is established.

The sequence of cause and effect is so obvious that the question naturally arises, if this theory is true why then do not all hypermetropes squint? Since the promulgation of Donders' thoroughly scientific explanation of what might be termed the optico-neuro-muscular mechanics of squint the ingenuity of ophthalmologists has been taxed to its utmost to explain why all hyperopes do not squint. It is not within the province of this paper to discuss the ingenious theories that have been advanced. Donders has one based on the relative range of positive accommodation over convergence. Mr. Worth claims that the lack of proper development of the fusion centers is at fault; even the writer has a pet theory differing somewhat from Donders, and borrowing somewhat from Worth. But it matters not one whit what the theories are. We are confronted by a condition which results eventually in blindness for one eye, and we have in our hands the scientific method of obviating the disaster.

By the judicious use of atropin we can overcome accommodation. Properly fitted glasses even for infants restore the balance of accommodation and convergence. Properly directed exercises gradually develop binocular single vision and thoroughly establish it on its physiological basis, and when this is done strabismus is cured—mark *cured*—not only corrected, for cure connotes parallel, visual axes, and binocular single vision, while corrected means only that the visual axes are rendered more or less parallel. Occasionally operative interference has to be resorted to even in the first instance to obtain a cure, but in all cases the operation should be done as a *dernier ressort*, when all other methods have been faithfully and persistently tried and have failed.

Now the essential requisite to obtain a cure is to get at the case early enough; if possible, in the periodic stage, and certainly before the strabismus has become thoroughly established. Give us the cross-eyed babies and we will return to you straight-eyed children, is no idle boast.

It is for you general practitioners to give us the infants. Yours is the opportunity to discover the first steps on this fatal road, and yours is the responsibility of guiding them into the proper path. You are the generals; we are but your staff officers to do your bidding with what skill we may be endowed. Do not for an instant think that the squinting child will outgrow the defect; they seldom do, and then usually one eye has lost its visual acuity. Do not follow in the wake of Stromeyer and Dieffenback, and wait till the child is old enough for an operation. You will be responsible for the loss of sight in one eye. Help the community in which you live by saving these little ones from a one-eyed life. We can not do it, because we do not see them until they are brought to us, alas, too late for cure.

One word regarding the methods for detecting slight deviations in the visual axes. Ordinarily the excessive in-turning of one eye is so conspicuous that no special devices are required to make a diagnosis. Sometimes, however, it is not so easily detected; of course, it is understood that we are dealing with children of more than six weeks of age. Previous to this time the co-ordination of the eyes is very variable and is very easily disturbed by slight ailments, such as indigestion, colic, etc.

Most of the instruments used by oculists for this work are cumbersome and practically useless with very young children. Fortunately the ophthalmoscope is the least cumbersome and the most useful. It should be used in this manner: place a lighted lamp or a candle above and behind the child's head, then sitting in front of the child hold the ophthalmoscope about two feet away from the patient's eyes and in such a manner that the light will be reflected in one eye. This operation will immediately attract the attention. Note the place where the little image is formed, if the eye is looking directly at the flame the reflection will be seen a little to the inside of the center of the cornea (on account of the angle gamma); now turn the mirror so as to flash the light on the other eye; if there is no squint the image will occupy a position identical to that in the first, if the eye squints the image will be seen toward the outer margin of the cornea. If it reaches the margin of the cornea it indicates a strabismus of about 45 degrees, if it is at the margin of a moderately dilated pupil the deviation is of about 15 degrees. In this manner the physician is enabled not only to diagnose strabismus, but also to measure pretty accurately the amount of over-convergence.

The diagnosis once made, the case is usually turned over to a competent oculist; but if the practitioner wishes to push his investigations further and ascertain the acuity of vision of the squinting eye, he may do so (providing the child is old enough to walk or creep) by Worth's ball method. Worth uses five ivory balls varying in size from half an

inch to an inch and a half. Three balls, however, will answer all purposes. One rubber ball an inch and a half in diameter and two marbles, one one inch and the other one-half inch in diameter; these balls are used as follows: At first, in order to interest the little patient, gain its confidence and acquaint it with the game, the squinting eye is covered with a bandage, or if glasses are used, by putting a patch over the glass; then standing at a distance of six yards from the patient the smaller marble is dropped or rolled on the floor and the patient told to go and find it. Ordinarily no difficulty will be experienced in getting the child to do this, nor will the child experience any difficulty in finding the ball with the good eye; this reveals normal acuity in this eye. Should any difficulty be manifested, then the next marble is dropped. If this one is readily found, vision amounts to about one-half normal. If, however, only the largest ball is seen vision = $1/5$. Such a condition is rather unusual, however, for the good eye usually has at least two-thirds vision. Now the squinting eye is covered and the process is repeated. A marked difference will be usually noted in the way that the child handles itself from the start. Frequently the child will make no move until the large ball is dropped, and even then there is often an uncertainty in orientation that can not escape a careful observer. It is not at all uncommon to meet with cases in which it becomes necessary to shorten the distance at which the ball is dropped to enable the child to see it. In such cases this distance should be measured and recorded. The large ball is equivalent to about $20/100$, the large marble to $20/40$ and the small marble to $20/20$. When the distance is shortened the new distance is used as the numerator; thus if the child sees the large ball at ten feet only the vision will be equal to $10/100$.

Occasionally the practitioner will find himself in the predicament of not being able to immediately refer the case to an oculist. The old saying, "a stitch in time saves nine," is admirably applicable to these cases; delay is worse than folly—it is criminal.

Prompt action is necessary to arrest the progress of a condition that will, if unchecked, lead to a high degree of amblyopia in one eye. Fortunately we have in atropin a remedy that will help him out of the difficulty. This drug by inhibiting accommodation removes one of the two principal factors in the disturbance, and by keeping the child's eyes under its influence the baneful effects of delay are greatly reduced. Indeed, it occasionally happens that the squint will entirely disappear. This, of course, does not mean that the trouble has been permanently cured, because one of the primary causes, hypermetropia, is not changed by this treatment. A drop morning and night of $1/2$ per cent. solution of atropin sulphate will usually suffice, and this treatment may be kept up until the case can be handed over to a competent oculist.

REPORT OF FOUR CASES OF MULTIPLE SCLEROSIS COMPLICATED BY MANY HYSTERICAL PHENOMENA.*

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CHICAGO.

There is no need of making any preliminary remarks on multiple sclerosis at this time. I will simply refer the reader to the symposium published in the August number of THE ILLINOIS MEDICAL JOURNAL, particularly to the thorough exposition of the symptomatology by William Healy. In the paper on diagnosis by Sanger Brown it is pointed out that cases of multiple sclerosis often for years are considered to be hysteria on account of the rapid and irregular appearance and disappearance and great variability of the symptoms. In my paper on the etiology and pathology it is shown that the disproportion between the extensiveness of the lesions and inconstancy of the symptoms depends on the peculiar character of the former. The essential lesion consists in the disappearance of the myelin sheaths, the insulating substance about the axones. The latter are the conducting parts and they persist.

The following four cases, which are the last four consecutive ones in my own practice, and thus in no way selected cases, illustrate the fact that a most careful examination is necessary in order to determine that more than purely functional disturbance exists, and that the symptoms are often transient and variable.

CASE 1.—A single woman, 39 years old, was seen with Dr. C. W. MacPherson, of Hazelhurst, and Dr. J. D. Overholser, of Milledgeville, on April 29, 1907, when the following notes were made: The family history is negative. The patient was well in childhood and early youth, except for occasional headaches. For twelve years she has complained of numbness and weakness of varying degree in the legs and less in the arms. During the last three weeks the legs have been completely paralyzed. There is no incontinence, but urination is precipitate. No pain has been complained of. On examination the pupils and ocular muscles are found normal. There is slight nystagmus when she looks to either side, especially to the right. Ophthalmoscopic examination reveals distinct pallor of the temporal half of both discs, the outlines of which are perfectly clear. There is almost complete loss of motion in both lower extremities, slight plantar flexion of the feet being the only motion preserved. The extensors of the wrists and fingers are very weak, more so on the left side. She is unable to raise herself to the sitting posture. Sensation is normal in all parts of the body. Both knee-jerks are exaggerated, especially the right. The ankle-jerks are feeble. There is no true ankle clonus, but a false clonus is obtained on the left side. Babinski's and Oppenheim's signs are present on both sides, there being a marked extension of the big toes on stroking the soles of the feet or passing the finger firmly along the tibiae. The abdominal reflex is absent. There is no muscular rigidity in the legs. There is slight intention tremor of the fingers, which is well shown when the patient is asked to touch the nose with the index finger. Speech is not affected. There is no tenderness or deformity of the spine.

On a very vague suspicion she was placed on specific treatment, which in a short time upset her digestion and was discontinued. On subsequent simple

*Read at the Sixty-ninth Annual Meeting of the Military Tract Medical Association, held at Peoria, Oct. 15 and 16, 1908.

tonic treatment she improved greatly, and in June Dr. Overholser one day found her standing in front of a mirror. In October (1907) the Doctor wrote me that she was able to move her toes and lift one foot over the other while sitting in her chair. After sitting up long the feet would become edematous.

CASE 2.—A married Jewish tailor, 36 years old, was admitted to my service in the Cook County Hospital on July 4, 1908. His family history is negative. He denies venereal infection and has been a moderate user of alcoholic beverages. He was in excellent health until six years ago, when he had what he calls a "severe cold," which was attended by swelling of the legs. Since then the legs have been more or less weak and easily tired, particularly the left one. Four years ago he began having a burning sensation in the calf of the left leg. A few years ago there was a girdle sensation about the abdomen, but this has entirely disappeared. He comes to the hospital chiefly on account of weakness in the legs and a staggering gait with tendency to fall to the left, and also complains of dizziness when lying on the left side and of frequent micturition. There is no impairment of sphincter control and he has had no headache.

Examination reveals a fairly well-nourished man of a nervous and worried appearance. He staggers in walking and has a tendency to fall to the left. He is always in fear of falling, worries much about himself and takes a very hopeless view of his case. The pupils are normal and the optic discs show no changes. Distant nystagmus is present and there is an intention tremor in the hands, more marked in the left one. His speech is deliberate, but not distinctly scanning and sometimes there is slight stumbling over syllables. Sensation is normal. Muscular power is good in the arms and only very slightly impaired in the legs, apparently equally in both legs, in spite of the much greater ataxia on the left side. Both knee-jerks are brisk, the left greater than the right. The ankle-jerks are not increased and there is no clonus. The plantar, abdominal, wrist and elbow reflexes are normal.

The patient remained in the hospital until August 27 and improved considerably. He was given small doses of potassium iodid, but the treatment consisted chiefly in attempting to inspire him with hope and confidence. He was told that there was no reason why he should be afraid to walk alone and that there was no danger of his falling. His gait improved considerably, but the nystagmus and the intention tremor remained unchanged.

CASE 3.—A working girl, 21 years old, was seen on July 24, 1908, with Dr. W. K. Yeakel, of Chicago. The father is nervous and goes on occasional sprees; the mother is well. The patient was well in childhood. Five years ago she had a left-sided pleurisy, with effusion, which was once aspirated. Since then she has been nervous. She has never suffered from headaches. In July, 1907, she was suddenly taken with a pricking sensation and numbness in the left big toe and this quickly extended to the middle of the thigh. In a few days this sensation successively involved the left arm and the left side of the face. The right side was not involved, so the disturbance may be designated a hemiparesthesia. There was no pain and no other complaint. She worked regularly, and in a week recovered completely after a few electric treatments, the numbness and pricking sensation remaining longest in the vicinity of the left eye. She was then perfectly well for a year. On July 15, 1908, similar sensations set in, first involving the right forearm, later in the same day also the left forearm, and on the following day the trunk and the left lower extremity. There was no headache nor other pain and no sphincter disturbance. Her sleep, appetite and digestion are good. She complains of great clumsiness in her fingers, can not thread a needle or pick up a pin and has not been able to dress herself during the past week. She writes only with great difficulty and very poorly.

Examination reveals a girl of a silly demeanor who laughs much without provocation. She can stand with her feet together and eyes shut, but stands poorly on one foot and hops poorly. When lying down she can not accurately place the heel on the opposite knee-cap. There is marked incoordination in the arm, but only little true intention tremor. She has greater difficulty when attempting to touch the nose with the left forefinger than with the right, and does

better when attempting to pour water from one test-tube to another. While light touches, pin pricks and heat and cold are felt everywhere, she has great difficulty in recognizing objects placed in her hands; that is, the stereognostic sense is impaired. The so-called osseous or vibration sense, viz.: the perception of the vibrations of a tuning fork placed on the bony points of the arms and legs is also diminished. The pupils and optic discs are normal. Slight nystagmus is present. There is no motor paralysis anywhere, but the grip in both hands is weak, the dynamometer registering 25 pounds in the right hand and 45 in the left. Both knee-jerks are distinctly exaggerated, the ankle-jerks slightly so. There is no ankle clonus and the plantar reflex is normal. The abdominal reflex is not obtained at all on the right side and is diminished on the left side. The wrist and elbow jerks are normal.

The patient was told that she would again improve on electric treatment, which she did, and soon returned to work. A few days ago (October 10) Dr. Yeakel informed me that he had seen her three weeks before, that nearly all symptoms had subsided, that she can now dress herself without difficulty, but that some degree of intention tremor and incoordination persists.

CASE 4.—A single man, 38 years old, German, who has been a painter and paperhanger for sixteen years, was referred to me for examination on May 21, 1908, by Dr. N. Remmen, whom he had consulted on account of trouble with his eyes. He had typhoid fever six years ago. He dates his nervousness from this time, and since then has occasionally suffered from headache and dizziness. Since the autumn of 1907 he has had pain in the back and neck. At 9 p. m. on May 11, just having heard some disagreeable news, he had a sensation of sudden jerks in the top of his head, after which his head felt as if "asleep" for several hours. He could not see well and not at all in an upward direction. The next day he was entirely blind until noon; then vision gradually returned and improved from day to day. For two days after this occurrence the urine was voided drop by drop. For two months he has noticed weakness in the legs, and for two years tremor in the hands when using them. He denies venereal disease, has not been intemperate and gives no history of lead poisoning. He has lost twenty-four pounds in weight in two months. Dr. Remmen found that his vision is normal, although there is a pallor of the temporal halves of the discs. This pallor can not be looked upon as evidence of atrophy in the absence of visual impairment.

The patient's manner is very nervous and he looks extremely apprehensive. He walks with a cane, with his legs apart and head thrown backward. The eyes can not be moved upward as far as the horizontal; otherwise there is no impairment of ocular movements. The pupils react normally. There is a marked tremor in the arms when any movement is attempted. There is no impairment of motion, aside from the loss of upward movement of the eyes, and there is no impairment of sensation. No nystagmus. The knee-jerks are exaggerated, while the plantar, cremasteric, abdominal, wrist and elbow reflexes are normal.

The subsequent history of the case is very interesting. His family physician (not Dr. Remmen) informed him that I had made the diagnosis of multiple sclerosis, and that this is an incurable disease, which greatly increased his already intense apprehensiveness and despair. Shortly afterward he presented himself at Dr. Healy's clinic at the Chicago Polyclinic, and in that short time the picture had changed considerably so there apparently was no certain basis for a diagnosis of organic disease. Dr. Healy still has the patient under observation and will present him for diagnosis at the next meeting of the Chicago Neurological Society and subsequently report the case in full.¹

1. The patient was presented at the meeting held on Oct. 22, 1908, and the diagnosis still left open. The case was fully discussed and different opinions expressed as to presence or absence of organic disease. There is still no actual optic atrophy, the pallor of the discs having been pronounced to be within physiologic limits. The upward movement of the eyes is better, especially when he uses one eye only, while the conjugate movement is still deficient. The right abdominal reflex had been absent for about two weeks and then returned, but is now not as strong as the left one. The patient is still easily exhausted and unable to work. Dr. Healy's report will appear in the *Journal of Nervous and Mental Diseases*.

REMARKS.

In all of these cases we have pronounced functional, largely hysterical symptoms, and in none of them could a diagnosis of organic disease be made without minute examination. None of them presented the classical "triad," nystagmus, scanning speech and intention tremor. All had exaggerated kneejerks, but the Babinski toe phenomenon only existed in Case 1. The abdominal reflex was absent on both sides in Case 1 and on one side in Case 3. Nystagmus existed in the first three cases. Pallor indicating optic atrophy was plain in Case 1 and of doubtful significance in Case 4. The paralysis of the legs in Case 1 was perhaps largely hysterical and soon disappeared, at least for a time. It is of great interest to find impaired stereognostic and vibration sense as the only findings on testing sensation in Case 3. The systematic examination of the so-called osseous or vibration sense is comparatively new, but has already sprung into prominence. A Swiss, Max Egger,² has made extensive study of this subject, and while of 22 cases of multiple sclerosis examined only 6 showed any disturbance whatever of touch, pain or temperature sense, 20 cases showed impairment of vibration sense. In the same paper Egger calls attention to the rapid fatigue so commonly complained of in this disease and also suggests that the transient amblyopia sometimes observed, as in my Case 4, may be due to similar exhaustibility of the visual apparatus.

The loss of the conjugate upward movement of the eyes noticed in Case 4, while perhaps most frequent in hysteria, has been observed in multiple sclerosis and is mentioned by Gradle³ in his paper in the symposium referred to. The tendency to silly laughter noticed in Case 3 is a frequent mental trait in this disease, as emphasized in Healy's article.

It is worthy of note that in three of my cases the onset was preceded, within what may be termed a reasonable time, by acute infections, namely, a "severe cold" in Case 2, pleurisy in Case 3, and typhoid in Case 4. The French writers, particularly Marie and his pupils, lay stress on preceding infection as an etiological factor (see paper on etiology in symposium referred to).

LONDON'S EYE WORK COMPARED TO THAT OF VIENNA.

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When comparing the eye work of London with that of Vienna, a number of things must be taken into consideration, such as the length of time that a person has been doing special work along that line, how long one intends to remain for study and research work, and the ability to speak and understand the language. The amount of study gained in two

2. Egger: *Revue Neurologique*, 1906, xiv, p. 275.

3. Gradle: *ILLINOIS MEDICAL JOURNAL*, 1908, xiv, p. 197.

months is very little, indeed, and I certainly would advise no one to go there for less than that length of time, if one desires to do good work, excepting in the case of eye specialists who have been in the work for years and only wish to spend a short time in certain subjects. There is considerable difference in regard to the work as given in the two cities. One pays considerable more for the work in Vienna and receives more instruction, that is, more attention is paid to each person individually.

In external diseases, a course is given costing about \$10 a month, in which six to eight persons are registered; this occupies about twenty hours of time. One subject is usually taken up at a time and thoroughly discussed, and, on account of the unlimited amount of material, a great many cases of the same variety of disease can be shown if required. From one to two cases are brought in at a time, certain members of the class are assigned to them, and after they have made their examination others may look over the patient. Your diagnosis is then requested, after which the professor goes thoroughly into the case, taking up in order etiology, symptoms, diagnosis and treatment. The above system may vary somewhat, but to a great extent this is the routine which is followed out. In the above courses you have only external diseases, so for fundus work it is necessary to take a twenty-hour course under Lauber or Muller, for which you pay the sum of \$12. Twelve men are usually registered in this course, and each day twelve new patients are on hand. The first two or three hours of the course may be taken up by lectures, but when the practical work starts each one is assigned to a case, and after you have finished your examination you talk over the case with the professor in charge, after which you go on with the examination of another patient. This work is very hard, indeed, for a beginner, as the personal instruction one receives in the use of the ophthalmoscope is very little, but in these courses one sees many cases every day, some of which are common; others are rare. Many of the cases have undilated pupils, and this is frequently a cause of great complaint among the new men.

The operative work by Professor Fuchs is always open to the students, and does not usually conflict with any other eye work, as he does not start till 11:20 a. m. There is a most excellent microscopy course given on the eye by Professor Salzman, costing \$20 and continuing daily for ten weeks. This is an English course, and is always in great demand. Another most excellent course is the one on operative eye by Docent Muller. His operative eye book, which is just out, gives one a good idea of his operative work and the operations which he gives in his course. There are only six allowed in the class, and he first goes over each operation by himself, lecturing as he does so, after which each student does the operating while the others look on. An eye muscle course may also be had here at any time. This is a very thorough course, and a knowledge of the subject should be well in hand before this course is undertaken.

One will at all times be favorably impressed by one thing, and that is the system on which basis the above courses are run. The income of many of the assistants is increased by the presence of the American student body, and the majority of them do all in their power to bring

forward the best material, and so give satisfaction to the greatest degree. It not infrequently happens, however, that some assistant becomes slack in his work toward the student, and to his surprise he finds that on the following month he can not fill a course, and he wonders why. After being told the reason he assures the men that it was all a mistake, and in a short time things are running smoothly again.

A knowledge of the language is not necessary, as all of the above courses are given in English, but not knowing it, nevertheless, is a great disadvantage, as it is very convenient to get a history of the cases from the patients themselves.

No refraction work is given in Vienna. I believe that the good work of Vienna is due to a great extent to the hard work of the A. M. A. of that city, which keeps a watchful eye out for the good of the student body as well as the professors. The work in London is under an entirely different system; all go to Moorfields Eye Hospital, which is situated on City Road, E. C. Lecture work or class work is given there only certain months during the year, and costs about \$50, everything included. Excepting at those times it is impossible to get any class work, but one may register at the hospital for the sum of \$15 and work in the free dispensary daily from 9 a. m. till 1 p. m. You are here classed as assistants, and as each eye surgeon has a number of assistants, you have your choice of working under whom you wish, providing they already have not their stipulated number.

If you have been to Vienna first you will feel very much dissatisfied, indeed, for the first few weeks, with your work in London, for if there happens to be no class work at the time you are there you have no instruction at all. Among the good men there are Messrs. Parsons, Worth, Cellins, Lang and Marshall. Each man has two days a week at the hospital, so if you do full work you will work under three different men. After the cases have been examined by the man in charge they pass on into another room, where you may go and pick them out to examine, taking refraction cases or external diseases and fundus cases, of which you will usually find plenty.

Cases are frequently assigned to different men to examine and report to the chief assistant or surgeon in charge. It is, indeed, a fine place if you wish to be independent in regard to your work. The majority of the surgeons you will find very kind and fairly willing to answer questions, but, nevertheless, they are somewhat distant, and thus differ greatly from the Vienna men.

Good fundus cases may be seen nearly every morning, but frequently no work about them is passed along, and they are gone before the men working at another desk know anything about them. As can be seen from the above, you can do all the refraction work here you wish, if you do not care for instruction, but if you do, return to Philadelphia or Chicago. The class work is very good, the best course of which is the one in ophthalmoscopy. In the class all subjects are dealt with as thoroughly as possible with the limited amount of time.

Messrs. Collins and Parsons have the largest following among the surgeons. Mr. Worth has a fine clinic, but is not the talker that the other men are. The operative work is held up-stairs and begins about 10 a. m. and is continued by different men throughout the morning, depending upon the number of cases. They have about four hundred cases a day at the dispensary, so one will find all the work they want to do. Arrangements can also be made for research work if one desires.

URGENTLY NEEDED MEDICAL LEGISLATION IN ILLINOIS.*

GEORGE W. WEBSTER, M.D.

President of the Illinois State Board of Health.

CHICAGO.

It gives me great pleasure to come before you, in response to the invitation of your secretary, to talk to you for a few minutes on this very important topic. Before taking up the question of what medical legislation is most urgently needed, permit me to outline briefly how, in my estimation, such legislation may be obtained. I believe the following to be necessary:

First. To know what we want, and that it is really desirable and needed, before asking for it.

Second. To agree among ourselves as to what we want.

Third. Do not ask for too much at one session of the legislature, but concentrate our efforts on what seems most urgent and what may be reasonably expected.

Fourth. We should go to the legislature as a united profession and show its members that what we ask for is desirable, that it is in the interests of the people, and that we are agreed among ourselves concerning it.

If we do this, I am confident that we can secure the enactment of 95 per cent. of all desirable legislation attempted and the defeat of the same percentage of undesirable legislation. The chief reasons for defeat in the past are because the foregoing rules were not adopted and followed. The desirability of any proposed measure has not been studied with sufficient care by those interested before it is unqualifiedly recommended by some one, or even introduced in the form of a bill, in the General Assembly. Directly in line with this thought, I might cite some of the recent efforts of the Illinois State Medical Society.

At the last annual meeting the president recommended and the House of Delegates passed a resolution recommending that the State Board of Health be abolished. This was done, notwithstanding the fact that the Legislative Committee of the American Medical Association has reported that it is making a careful study of the question of the desirability of a Board of Examiners separate from the State Board of Health; whether a commissioner is preferable to a board, etc., and has especially urged that no legislation be introduced until after the ques-

*Read before the Evanston Branch of the Chicago Medical Society, Oct. 29, 1908.

tion has been carefully studied and reported upon and that it is in the direction at least of comparative legislative uniformity and has the sanction of the Legislative Committee of the American Medical Association and the mass of the profession. Please understand that I am not opposing the bill to abolish the State Board of Health if it can be shown that such a law would serve the best public health interests of the people of this commonwealth. If it is the wish of the people and the profession and in the interests of both that we have a separate Board of Examiners and a Commissioner of Health instead of a board, then I, too, shall favor and work earnestly for both. Until then I shall not.

If I may be permitted to voice my own views, I may say that I conceive the work of the State Board of Health to be a legitimate exercise of the police power which is ever exercised, not in behalf of a class or profession, but in the interests of the whole people. Furthermore, I believe that all of the public health interests of the entire state, such as all questions pertaining to the preparation, inspection and sale of foods, the production, transportation and sale of milk, the examination of water supplies, the control of diseased animals, the license and control of the practice of medicine, the establishment and maintenance of quarantine, the general supervision of the lives and health of the people, should be under a single head, whether an individual or a board, just as I believe that all public health interests of the federal government, so far as they are national in character and scope, or international, should be under a single head, a cabinet officer.

All public health agencies in a state or in the nation should be harmoniously co-operative and co-ordinated, and should be treated as public health problems and not primarily as commercial questions, as is, for example, the production, transportation and sale of milk in Illinois. We have a State Live Stock Commission, a Pure Food Commission and a State Board of Health, and there is no legally established co-ordinated co-operation between them. Whether the farther subdivision of public health responsibility by the creation of one more board or substituting a commissioner for a board will simplify or improve matters is, I think, still open to serious question.

But I came to talk to you of what medical legislation is most urgently needed in Illinois at the present time. I believe, and it is the opinion of the State Board of Health, that the two most urgent needs are: first, a state sanatorium for tuberculosis, and, second, a births and deaths law.

It is now the opinion, as it has for years been the opinion, of the State Board of Health that one of the urgent needs of this state at this time, if we are to rank with other progressive states, is a sanatorium for tuberculosis, and we expect to work for it at the next meeting of the General Assembly. It has the approval of the State Board and of Governor Deneen. An epileptic colony is needed, but the need is not nearly so great as for a tuberculosis sanatorium, and I do not believe that we can get both at one session of the legislature. Therefore, I

believe that we should all concentrate our efforts in an endeavor to secure a tuberculosis sanatorium. If it seems probable that an appropriation can be secured for an epileptic colony, then work for it too.

The second urgent legislative necessity for Illinois is an acceptable births and deaths law. Before outlining the arguments in favor of such a law, a brief word of explanation may not be uninteresting.

HISTORICAL.

The United States government has been trying to collect vital statistics for the entire country for over fifty years, the census of 1850 being the first in which the subject of vital statistics was included. It was recognized then, and reaffirmed at each of the successive censuses that vital statistics obtained directly from the census enumerators (the only method open to the United States government) are utterly worthless so far as accurate birth or death rates for the entire country are concerned. The difficulties in the way of securing satisfactory vital statistics are inherent in our form of government, and their solution will depend upon a thorough understanding of the situation, and a high degree of efficient cooperation on the part of all concerned.

Births and deaths are registered under state laws or city ordinance as an exercise of the police power which is inherent in the state and does not belong to the federal government. The state may send transcripts of its original records to the census bureau and receive a certain specified compensation therefor. The census bureau has nothing to do with the direct collection of the data and no authority to legislate for the states concerning the matter. It follows that, enumeration being utterly useless, registration being absolutely essential and the census not having authority to legislate on the matter, it is highly important that each state should enact proper laws and then rigidly enforce them, cooperating effectively with the bureau of the census and with each other in accordance with the resolution of congress, approved Feb. 11, 1903.

PRESENT STATUS OF REGISTRATION.

The United States as a whole is not represented in international vital statistics. In this respect we are far behind some thirty-two of the leading countries of the world, including even Mexico and Argentine Republic in South America. Since 1900 returns of births and deaths have been received by the census bureau from a limited number of states in the union, and known as the "registration area," and published in the annual mortality reports of the bureau of the census.

At the present time the states comprising the registration area are Maine, Massachusetts, Rhode Island, Vermont, New Hampshire, Connecticut, Indiana, Michigan, District of Columbia, New Jersey, New York, California, Colorado, Maryland, Pennsylvania, South Dakota, these fifteen states and the District of Columbia representing a population in 1906 of 36,846,981, or 48.5 per cent. of the total population of the United States, as against 26.3 per cent. in 1900. It should be stated that the figures which I have given include certain cities not in the registration area, but having satisfactory ordinances. These states

are recognized by the bureau of the census as registration states because they have enacted laws which are satisfactory to the bureau. It must be added that the registration area is accurate for deaths only. No state in the union, and no city in the United States, has yet been accepted by the bureau as having a fairly complete registration of births. Even the District of Columbia, under the direct control of congress, has not succeeded in obtaining accurate returns of births, despite continuous efforts since 1872.

But, you may inquire, has Illinois no births and deaths law? Yes, it has, and so have most of the other states in the union, but they are so defective that the returns under them are not accepted by the census bureau. It is not so much the absence of laws as the presence of worthless, defective laws, incapable of satisfactory operation, that is responsible for the failure of registration throughout a great part of the United States.

The history of vital statistics legislation in Illinois is interesting and instructive. A law was passed in 1877 and observed for a few years and gradually died and no attempt was made to revive it. In its annual report to the governor in January, 1901, the State Board of Health recommended the enactment of a births and deaths law. In his biennial message to the legislature, read in the senate Jan. 9, 1901, Governor Tanner concurred in the recommendation of the board.

Acting upon the recommendation of the State Board of Health and of Governor Tanner, the Legislative Committee of the State Medical Society and the secretary of the board, after one failed, finally secured the passage of a bill which became a law. The bill was drawn by the secretary of the State Board of Health and passed without amendment. This law went into effect on Jan. 1, 1902, and worked fairly satisfactorily. In 1902 a bill was introduced in the house by Speaker Miller, providing for a repeal of the law of 1901 and at the same time in the senate by the late Senator Burnett. Their objection to the law was the burial permit feature. They maintained that it was too much trouble to obtain legal permission to bury their dead. The State Medical Society did practically nothing to oppose the repeal of the bill. Speaker Miller and Senator Burnett informed the secretary of the State Board of Health that they would not oppose a compromise bill in which there was no compulsory burial permit feature. The secretary of the board thereupon drew up a bill of the present law and it passed and became a law. Its chief weakness lies in the fact that it provides for voluntary registration of deaths. It is not acceptable to the census bureau, and under it Illinois is not a registration state.

PURPOSE OF MOVEMENT.

The purpose of this movement for the extension of the registration area is to increase the number of registration states until the entire United States shall be represented by returns of births and deaths, and American vital statistics shall be entitled to rank with those of other civilized nations of the world. Illinois should not be slow to assume

among the states that station to which she is entitled by virtue of her geographical situation and commercial and intellectual and public health supremacy. Practical success has pointed the way and Illinois should not be slow to follow it.

Illinois may become a registration state by the enactment of such a law as that passed two years ago in Pennsylvania, a law that is practically the same as that recommended by the Legislative Committee of the American Medical Association and endorsed by the bureau of the census and the vital statistics section of the American Public Health Association.

But you ask, what are the advantages of registration and of what importance is it? The advantages may be broadly classified as sanitary and legal.

Sanitary.—In this country the sanitary uses of vital statistics have quite overshadowed their importance as legal records. Modern public health administration is intimately dependent upon reliable mortality statistics. Modern sanitation itself is the child of vital statistics, and the beginning of national registration of births and deaths in England in 1836 marked the commencement of the "sanitary era" in which we live and which is yearly witnessing greater and greater triumphs in the conquest of disease. Let us follow the splendid example of Pennsylvania, which in 1905 had the poorest registration law in the United States and now has the best. Permit me to quote from Dr. William H. Allen's monograph on rural sanitary administration in Pennsylvania and the state board as a statistician:

Whatever hurries or retards marriages, increases or decreases the number of births, or throws light on the causes of sickness and death should be found numerically treated in the reports of local and state health authorities.

The object of gathering these social facts for analysis is not to furnish material for future historians. They are facts collected with a view of improving social vitality, to raising the standard of life, and to eliminating permanently those forces known to be destructive to health. Unless they are to be utilized in this way, they are of interest only to the historical grub. The state can not afford to erect a statistical office to serve as a curiosity shop. Unless something is to be done to prevent the future occurrence of typhoid epidemics, such as our cities—Pittsburg, Philadelphia, Allegheny, Allentown, etc.—have annually experienced, there is no special reason for asking the public printer to make tables which indicate the great cost of this preventable disease. Unless some one is at hand to abate the cause of transmissible disease and to check infection at its inception, the notification is of little social utility. Statistics presume efficient administration. An inefficient health officer will not care to gather statistics. If some else furnishes him with statistics, they are as a lantern to a blind man.

On the other hand, the earnest, intelligent health officer relies upon statistics for an understanding of his field. A tax collector can not discharge his duties unless he knows the address of every debtor. A police bureau can not protect society unless it knows the character and haunts of the degenerates. A health officer can not execute the law for the protection of society's health unless he knows the haunts and habits of disease. For this he must look to vital statistics. But the greatest service of vital statistics is their educational influence. Health officers can not rise far above the standard of culture of those who provide the means for administering the law.

The tax-paying public must have a belief in the economy, utility and necessity of sanitation. Power and funds must come from the town councils and state legislatures. To convince and move these keepers of the purse, reliable vital statistics are indispensable. The socialization of information always follows its dissemination. Wherever statistics are wanting, sanitary administration is defective. Wherever they are complete, sanitary administration is efficient. Defective vital statistics and low ideals of cleanliness and health go hand in hand.

Also Chapin on municipal administration in the United States: "The registration of vital statistics is the firm basis on which the whole structure of sanitary science and practice must rest. In order to learn the laws of disease, to devise remedies and test them, we must have an approximately accurate knowledge of the movement of population and of the causes of death."

Dr. Arthur Newsholme, medical officer of health of Brighton, England, and author of a standard work on vital statistics, says:

The registration of causes of death has given an immense impetus to sanitary work, and it is scarcely too much to say that modern sanitary science owes its existence to the registration of deaths and their causes, and the localization of insanitary conditions thereby insured. By its means, conjoined with the census returns, we are able to submit to numerical analysis the facts relating to the laws of vitality, the influence of age and sex, of civilization, occupation, locality, season, and many other agencies, and our knowledge of all the facts bearing on health and disease has attained a precision never before known.

Dr. John S. Fulton, formerly secretary of the Maryland State Board of Health, and secretary general of the recent tuberculosis congress at Washington, D. C., says:

Public hygiene is built upon, is controlled and directed by, and is everlastingly in debt to vital statistics. The might and the right to direct the future of preventive medicine, to make and to terminate contracts, to approve and reject risks, to test materials and methods, to invest means and distribute profits—these things belong inalienably to vital statistics. Every wheel that turns in the service of public health must be belted to this shaft, otherwise preventive medicine must remain invertebrate and unable to realize the profits available from the magnificent offerings of collateral science. If the unborn historian of hygiene in the twentieth century shall find one anomaly more curious than any other, it will be that the twentieth century, opening with prodigious resources, immediately available, ran a third or half its course before these resources became so standardized that each unit of power might be accounted for in a definite scheme of vital statistics.

Legal Importance.—Dr. Cressy L. Wilbur, of the census bureau, says:

Human life is sacred. When a human being passes out from our life, it is important that an immediate record be made of all of the essential details of the event. Pensions or life insurance may depend upon proper evidence of the fact and cause of death. The widows and orphans of deceased soldiers must obtain such proofs. Titles and rights to inheritances may be jeopardized by the failure of records. The individual citizen of the state, no matter how humble his position in life or how insignificant his influence in the affairs of the community, is entitled to have an accurate record made of the important, the vital, events of his life. If the state has undertaken to do this, then the citizen has a right to expect that the state will perform its duty with precision and thoroughness; it is a disgrace to confess default in this important matter, and to admit the failure, year after year, of legislation devised for this purpose.

Governor Hastings in his message to the Pennsylvania legislature says:

The need of a suitable system of registration of vital statistics is also being constantly brought to the attention of the health authorities. In an enlightened community there live but few people of mature age whose birth, marriage or death does not at some time become a matter for the cognizance and consideration of legal authorities. The attainment of majority with its rights and duties, the fact and date of wedlock, the inheritance or conveyance of property, parentage and nationality, place, date and cause of death, and interment and many other questions of a sociological, economic, sanitary or even historical character, often assume much importance with reference to many of our citizens. In the absence of a state system of registration, many of the citizens are deprived of their legal rights or are enabled to deprive their fellows of their legal rights. The history of the registration departments of the health offices of Philadelphia and Pittsburg shows that inquiries for important information supposed to be contained in their records are almost continual, and afford sufficient evidence of the public value of such a system of registration.

Dr. Marshall Langton Price, secretary State Board of Health of Maryland, Baltimore, Md., says in regard to the importance of vital statistics:

Vital statistics is the most important of statistical studies. This is true from the merely economic standpoint. All property other than real, having intrinsic value, derives its value from the population. Considering the subject from the hygienic standpoint, we can truthfully say that all permanent hygienic advancement is founded upon data derived from the study of vital statistics. The fundamental data upon which vital statistics are founded are the birth rate, the death rate and the duration of life. The whole purpose of public hygiene is to increase the birth rate, decrease the death rate and increase the duration of life. In vital statistics we find not only the measure of our efficiency, but the means by which we can obtain these ends. Finally, "Knowledge is the power through which we walk, unscathed, among the powers of darkness, and Statistics is the supreme court of Knowledge; and if statistics is the supreme court of all knowledge, Vital Statistics is the court of last resort for all knowledge of public hygiene."

But why go on! I am sure you are convinced. How can Illinois do her duty in this matter? Introduce and pass the bill which has the approval of the Legislative Committee of the American Medical Association, the vital statistics section of the American Public Health Association and the census bureau of the United States, and which has been found so eminently satisfactory in Pennsylvania.

It ought to be done at the next meeting of the legislature: first, because it will furnish the only reliable means of estimating the value and efficiency of public health measures now in operation or hereafter adopted; second, the next decennial revision of the international system of classification of causes of deaths will be held in 1910 and we should have a voice in that convention; third, Chicago is now the only large city in the United States that has not adopted the international system. I am informed that she is now ready to assist in the passage of the law, to adopt the international system and to cooperate with the State Board of Health in a satisfactory registration of births and deaths.

FUSED (HORSESHOE) KIDNEY.

BYRON ROBINSON, M.D.

CHICAGO.

The time is appropriate to call the attention of the physician to the subject of fused, or horseshoe, kidney. The blooming of ureteral and renal surgery demand more general attention to renal anomalies. For the illustration of the subject of horseshoe-kidney I have selected at random from my eighty-four drawings of horseshoe kidney, secured from all sources, Nos. 74, 78, 79 and 80. These four illustrations were secured from the anatomie museums of Paris (France), Berlin (Germany) and Adelaide (Australia). For physieians, when the article is accompanied by illustrations, it is sufficient to mention the elements that are practical and suggestive. A horseshoe kidney indicates the coalescence of renal parenchyma from opposite sides of the body in contrast of fetal lobulation, which indicates that the kidney is a composite organ and has coalesced bilaterally separate. The nomenclature I have introduced is the following: (1) *Renēs arcuati distal*—the distal renal poles live coalesce. (2) *Renēs arcuati proximal*—the proximal renal poles have fused. (3) *Renēs compositæ*—i. e., the bilateral renal parenchyma is coalesced centrally. This nomenclature includes the idea of form. The location of the renal isthmus is not only important, but its relation to the great abdominal vessels is significant.

In sixty subjects of horseshoe kidney the renal isthmus was located at the proximal poles in 6 per cent., at the distal poles in 88 per cent. and at the medial renal mass in 3 per cent. Perhaps the most practical matter related to horseshoe kidney is the renal vessels. Multiple renal vessels are characteristic of horseshoe kidney. They are uncertain in number, position and dimension (length and diameter). Accessory renal vessels are frequently located proximal and occasionally distal to the normal vessels. Practieally a horseshoe kidney is supplied with more blood than a normal one. This, perhaps, accounts for the health of a horseshoe kidney. The ureters, consisting of the ureter proper, ureteral pelvis and ureteral calyces, is of marked signification in horseshoe kidney. Practieally in sixty horseshoe kidneys 90 per cent. of ureters course ventral and 10 per cent. dorsal to the renal mass. The dimension and form of the ureter in horseshoe kidney is practically identical with the normal. In horseshoe kidney the renal hilus is more frequently on the ventral surface than normal kidneys. The position of the horseshoe kidney presents a congenital distalward renal dystopia. The horseshoe kidney should be considered anatomically, physiologically, clinically, pathologically and surgically. The illustrations, 74, 78, 79 and 80, with their legends will demonstrate more than words can tell.

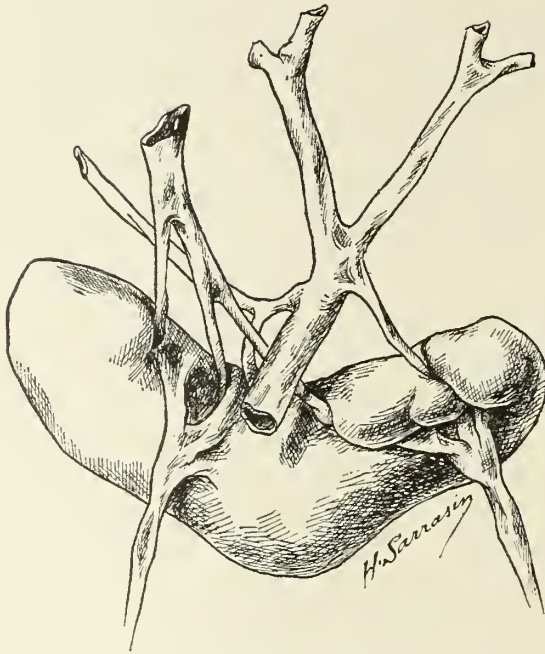


Fig. 74.—Fused (horseshoe) kidney—*renes arcuati distal* (i. e., distal renal poles fused). Presentation, ventral view, isthmus renalis, parenchymatous. Dimension, maximum fusion. Location, at distal renal poles, directly ventral to aorta and vena cava and directly dorsal to ureters. The renal isthmus and ureters both lie ventral to the vasa-abdominalia magna, *hilus renalis*, bilateral hilus unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form, irregular, non-definitive. Dimension right excessive, left limited. Sinus renalis, irregular in form and diameters. Ureter proprius, bilateral ureteral unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form (isthmuses, dilatation) marked. Dimension, normal range. Pelvis ureteris, bilateral pelvic unicity. Location, on ventral surface of bilateral renal mass. Form, normal. Dimension, limited. Calyces ureteris, bilateral calculic unicity. Diameters, elongated. Location, on ventral surface of bilateral renal mass. Vasa renalia. (*Arteriæ iliacæ communis* are drawn proximalward, and remain proximal to the horseshoe kidney). Bilateral arterial unicity. Veins definitive in specimen. Renal arteries paired, non-symmetry. Vasa renalis enter renal hila. Renal veins lie ventral to renal arteries. Topography, *Holotopia*, abnormally medianward and distalward. Skeletopia, excessively intimate with the lumbar vertebrae, os sacrum and ossa innominata. Syntopia, abnormally adjacent to vasa abdominalia magna. Idiotopeia, abnormally rotated on renal axes. Form, crescentic, reniform. Surface, lobulated. Symmetry, bilateral non-symmetry. Dimension, equivalent to two kidneys. Position, distalward and medianward congenital renal dystopia. (Presented to me from Dupuytren's Museum, Paris, France.)

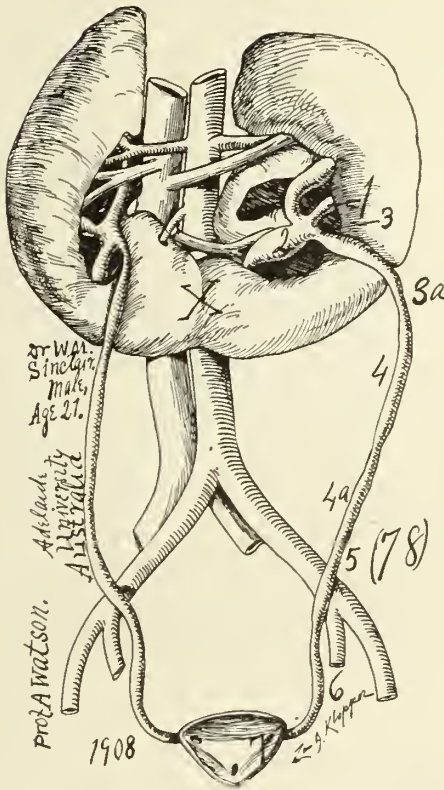


Fig. 78.—Fused (horseshoe) Kidney—renes arcuati distal (i. e., renal poles fused at the distal end). Man, 22 years of age. Explanation of illustration signs: X, renal isthmus. 1, Ureteral calyces; 2, ureteral pelvis; 3, proximal ureteral isthmus (3a secondary proximal ureteral isthmus); 4, primary; 4a, secondary lumbar spindle (dilatation); 5, middle ureteral isthmus; 6, pelvic ureteral spindle (there are two which are of frequent occurrence); 7, distal ureteral isthmus. Presentation. Ventral view. Isthmus renalis, X, fibro-parenchymatous. Location, at distal renal poles, directly ventral to aorta and vena cava and directly dorsal to ureters. Both ureters and renal isthmus lie ventral to the vasa abdominalia magna. Hilus renalis, bilateral hilus unicity and non-symmetry (as to form, position, dimension). Location, right on median renal surface. Form, irregular, boundary definitive. Dimension, right normal, left excessive. Sinus renalis, diameter, irregular. Left sinus renalis—renal excavation—resembles a saucer. Ureter proprius, bilateral ureteral unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form (isthmuses and dilatations), marked. Dimension, usual range. Course, left distorted, right normal. Pelvis ureteris, bilateral pelvic unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form, irregular. Dimension limited. Calyces ureteris, not completely exposed. Vasa renalia, right arterial duplicity and venous unicity. Left arterial unicity and venous duplicity. All renal vessels enter hila except distal right renal, which penetrates, pincard-like, the renal surface, vasa renalia, paired, bilaterally symmetrical. Topography. Holotopia, located abnormally medianward. Skeletopia, excessively adjacent to lumbar vertebræ, Syntopia, abnormally intimate with vasa abdominalia magna. Idiotopea, renal axes excessively rotated. Form, crescentic. Symmetry, bilaterally non-symmetrical. Surface, reniform. Dimension equivalent to two kidneys. Position, medianward congenital renal dystopia. (Presented to me by Prof. A. Watson from the Adelaide University of Adelaide, South Australia.)

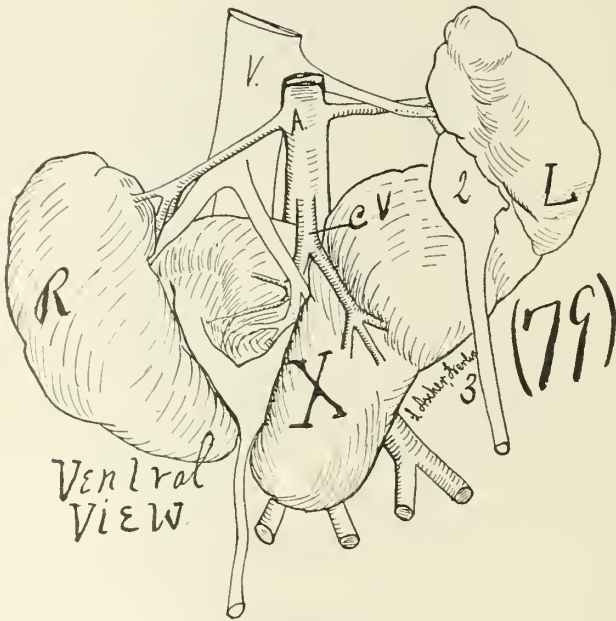


Fig. 79.—Fused (horseshoe) kidney—renes arcuati distal (i. e., distal renal poles fused). Male, 9 years of age. Explanation of illustration signs: V, vena cava; A, aorta, C, V, renal artery supplying the isthmus renalis; 2, ureteral pelvis; 3, proximal renal isthmus. Isthmus renalis. X, parenchymatous. Location, at distal renal poles directly dorsal to ureters and directly ventral to the aorta and vena cava. The renal isthmus and ureters both lie ventral to the vasa abdominalia magna. Dimension, maximum fusion. Presentation, ventral view. Hilus renalis, bilateral hilus, unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of the bilateral renal mass. Form, irregular. Dimension, medium. Sinus renalis, diameters distorted. Ureter proprius, bilateral ureteral unicity. Location, on ventral surface of bilateral renal mass. Form (isthmuses and dilatations) marked. Dimension, normal range. Course, distorted. Pelvis ureteris, bilateral pelvic unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Dimension, normal range. Calyces ureteris, not exposed. Vasa renalia, bilateral vascular duplicity, paired. A special feature is that the distal pair of renal vessels arise as a single trunk and shortly bifurcate, one branch supplying the left and the other the right renal mass. The ligation of the common trunk would deprive both renal masses of blood. All vasa renalia enter renal hila except left branch of distal renal artery. Topography. Holotopia, located abnormally medianward and distalward. Skeletopia, excessively adjacent to lumbar vertebrae, os sacrum and ossi innominata. Idiopia, abnormal rotation of renal axes. Form, crescentic. Symmetry, bilaterally non-symmetrical. Surface, irregular. Dimension, equivalent to two kidneys. Position, distalward and medianward, congenital renal dystopia. (Presented to me by Prof. J. Orth, from the Berlin Pathologic Institute, Berlin, Germany).

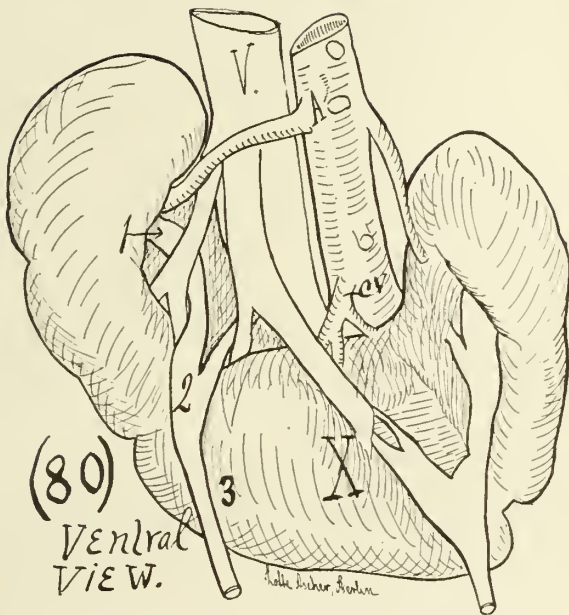


Fig. 80.—Fused (horseshoe) kidney—renes arcuati distal (i. e., the distal renal poles fused at the distal end). Male, 22 years of age. Explanation of illustration signs; X, parenchymatous, V, vena cava; A, aorta. 1, Ureteral calyces; 2, ureteral pelvis; 3, proximal ureteral isthmus. C. V., distal renal artery. Presentation, ventral view. Isthmus renalis, X, parenchymatous. Dimension, limited. Location, at distal renal poles, directly dorsal to ureters and directly ventral to aorta and vena cava. Both renal isthmus and ureters lie ventral to the vasa abdominalia magna. Hilus renalis, bilateral hilus unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form, irregular, with non-definitive boundary on left. Dimension, left excessive, right normal. Sinus renalis. Shallow excavation. Diameters, irregular. Ureter proprius, bilateral ureteral unicity. Location, on ventral surface of bilateral renal mass. Form (isthmuses and dilatations), marked. Dimension, usual range. Course, distorted. Pelvis ureteris, bilateral pelvis unicity and non-symmetry (as to form, position, dimension). Location, on ventral surface of bilateral renal mass. Form, irregular. Dimension, limited. Calyces ureteris, not exposed. Vasa renalis, right vascular duplicity and venous unicity. Vasa renalia enter hila. Arteria paired. The distal vasa renalia possesses a common trunk which emits branches to bilateral renal masses, hence caution in ligation of vessels would be here demanded in partial nephrectomy. Topography. Holotopia, abnormally medianward and distalward. Skeletopia, excessively adjacent to lumbar vertebræ, os sacrum, ossa innominata. Syntopia, abnormally intimate to vasa abdominalia magna. Idiotope, renal axes abnormally rotated. Form, crescentic. Symmetry, bilaterally non-symmetrical. Surface, irregular reniform. Dimension equivalent to two kidneys. Position, distalward and medianward and congenital dystopia. (Presented to me by Prof. J. Orth from the Berlin Pathologic Museum of Berlin, Germany.)

NOSTRUM ADVERTISING IN THE MEDICAL PRESS AND HOW TO PREVENT IT.*

RUPERT M. PARKER, M.D.

CHICAGO.

Since the inauguration of the crusade against unethical proprietary remedies much effective work has been done in discouraging their use. The sincere and faithful work of our Council on Pharmacy and Chemistry and the excellent articles from various able and eminent physicians who have written in behalf of this reform deserve great credit. They have been pre-eminently influential in exposing the low commercial spirit that so largely rules the proprietary trade and in awakening us to a realization of our slovenly, indolent habits of prescribing which have permitted the dishonest promoters to use us in advertising and selling their worthless, if not dangerous, preparations.

Thanks to the enthusiastic workers for this reform, we have quite generally come to a realization of the imposition practiced upon us by numerous proprietary firms, which misrepresent the composition of their remedies, grossly exaggerate their therapeutic virtues and advertise them clandestinely with an abandonment of all sense of decency and honesty which is rivaled, but not exceeded, by the vendors of so-called "patent medicines." As a result of this campaign there has spread widely in our profession a wholesome scepticism with reference to remedies offered by avaricious promoters. Reliable information such as that furnished by the Council on Pharmacy and Chemistry has been heartily welcomed and eagerly studied by physicians in large numbers. It is to be deplored, however, that all physicians have not seized the opportunity presented in the description of "New and Nonofficial Remedies" of becoming intelligent prescribers of proprietary preparations, and that they continue to prescribe, not only those remedies ignored by the Council, but even nostrums of the worst type, the promoters of which have been held up to us as examples of the most flagrant offenders, who have sacrificed all right to our confidence and our patronage.

The stacks of printed matter and the numerous samples under which our tables still groan and the hosts of advertisements of the same old offenders which still crowd the pages of our medical magazines all testify to the fact that the nostrum vendor is still hopeful for the future and believes that continued exploitation of the medical profession will be profitable. If there are among us any individuals so optimistic as to believe that nostrum prescribing by the regular members of our profession is a thing of the past, they need to dig but a short way into any prescription file to discover the unsavory truth.

* Read before the Englewood Branch of the Chicago Medical Society.

But one should not be disheartened nor even discouraged at the conditions prevailing toward the end of a four years' active crusade against dishonest proprietaries. We should bear in mind that this reform is a campaign of education which is ever slow and tedious, but the only method by which substantial and enduring results can be attained. That more has not been accomplished must be charged in part to the sluggishness with which the profession has responded to the spirit of the movement. A most active factor in retarding the progress of this reform has been the opposition of a large number of medical journals to our propaganda.

The medical press is our most important means of educating the profession. It is the simplest, most direct and most effective method of reaching the individual. It is an invaluable auxiliary to the educational work of the medical society, and it is to be regretted that this, our most powerful gun, has been turned against us in this campaign by our enemy, the nostrum makers.

The fact is too well known to require elaboration that practically all medical journals of wide circulation and high standing, famous as scientific publications throughout the world, are under the control of the proprietary companies so far as their attitude toward the nostrum problem is concerned. These journals advertise most offensive remedies. On nearly every advertising page can be found the name of some nostrum which has been branded by the Council on Pharmacy and Chemistry and held up to us as most flagrantly offensive.

By advertising freely in these prominent journals and paying liberally for the privilege, the proprietors have profited in two ways. The preparations advertised enjoy an implied endorsement which is powerfully influential by virtue of the high standing and the wide distribution of the magazines in which they appear. At the same time the objectionable preparations gain immunity from attack through the columns of the magazine which rigidly excludes every word derogatory to its advertisers. In isolated instances the journals have even lent their editorial columns in defense of the disreputable preparations. Our propaganda for reform suffers immeasurably when the medical press, our legitimate and natural ally, is thus estranged from the cause.

How to acquire the cooperation of the journals in our effort to abolish the nostrum is the most vital problem which now confronts the progress of this reform, and no pains should be spared in seeking out a solution. The *Journal of the American Medical Association* and some of our state journals have thus far been the life of this movement. Their great influence serves to emphasize the desirability of securing other prominent magazines as our standard bearers. To show that it is entirely possible for the medical profession to control their journals and to present a practical method by which it can be done is the object of this paper.

One essential to the success of any magazine is a sufficient number of readers. It is from them directly or indirectly that the publishers receive their remuneration. Advertising space is unsalable in a journal unless it has a substantial subscription list. Just as essential to the existence of

a publication are the contributors of its literature. No publisher, single-handed, or even with the help of his salaried editors, can create a medical journal of any considerable importance. He requires the cooperation of many original researchers, astute diagnosticians and eminent surgeons, men of wide experience, large calibre and great ability, to establish prestige for his publication and to create for it a considerable demand among physicians. The makers and the readers of the medical journal are members of our profession. They are the producers and the consumers. The publisher is but the middle man. Have we not a right, then, to insist that our middle man in transmitting the finished product from the producer to the consumer must not contaminate it with offensive and dangerous adulteration?

Effort to prevent the advertising of nostrums by the medical press has not been wanting. Enthusiastic champions for reform in proprietary remedies have appealed time and again to the subscribers to withdraw their support from the journals advertising objectionable preparations. I have no means of knowing to what extent the subscribers have responded, but a perusal of the advertising pages of our leading medical magazines will convince the most optimistic that the publishers are not greatly alarmed. The plan, however, would certainly be successful were a sufficient number of physicians to adopt it. But, obviously, those readers enthusiastic enough for the reform to deprive themselves of current literature would not in any event prescribe nostrums, whereas the many who do prescribe them are not likely to make so great a sacrifice for a principle which has not appealed to them strongly. At all events the plan to solve the problem of nostrum advertising through the readers of our journals has failed. Let us now turn to the magazine makers.

We need not waste time in requesting the publishers, who are laymen, to deny their advertising columns to the nostrum promoters. It is unreasonable to expect that they will sacrifice in our interests a lucrative project. The same is true of our professional brothers in the editorial chairs. Many unkind things have been said of them for their association with journals advertising dishonest preparations. I contend that it is unjust to condemn the editors for earning a sustenance in the employment of a publication to which the rest of the profession give their financial and intellectual support.

The party on whom we must rely to prevent nostrum advertising is he who contributes to our journals scientific articles. He is the real creator of the publication. He furnishes the life, the blood, the bone and the marrow of the medical journal. Who is he? He is the original researcher in the laboratory, the profound clinical student in the hospital ward, the expert surgeon and pathologist of the operating room. He is the professor in our medical schools, the official and ex-official of our state and local society, the president and ex-president of the American Medical Association. He is even numerous among the ardent workers for this reform. He it is who sets the high standard of the publication which he favors with the invaluable reports of his tireless scientific in-

vestigations, creating for it a demand which calls it to the tables of thousands of physicians in spite of the burdensome handicap carried in the advertising columns. I feel confident that I suggest an absolute preventive of nostrum advertising in the medical press when I say to the contributor: Refuse your manuscript to every medical journal advertising disreputable preparations. Deprived of your contributions, what will the publisher have left to attract the readers to his nostrum laden pages?

Why should not such a measure be practicable? You are the flower of our profession, the worker who is striving to advance scientific knowledge and methods. You are abreast with the spirit of the day, keenly alive to the abuses of the proprietary trade. You have the best interests of your profession at heart. Why not adopt so simple a measure to promote a reform so vital to the needs of medical education? The sacrifice entails no hardship to you. For the most part you receive no direct monetary return for your contribution, and if you do, the income therefrom is inconsiderable and non-essential to your livelihood. The worst that can happen is a slight delay in the publication of your article. It is safe to predict that contributions of real worth will not go begging for decent journals to publish them were they denied to the nostrum advertisers.

Allow me to say to you authors of medical literature that the deplorable ignorance of scientific prescribing in your profession and the extent to which nostrums are prescribed is largely due to your sins of omission and commission. As educators in our medical schools, you have neglected adequate instruction in materia medica and pharmacology, which has contributed to the upgrowth of an unhealthful therapeutic nihilism. You have encouraged irrational prescribing by recommending the nostrum in the class and consulting rooms and by permitting their use in the hospital wards.

It is true you have done much to advance the propaganda for reform in proprietary remedies. As leaders in the American Medical Association you created and now maintain the Council on Pharmacy and Chemistry. Some of you have delivered powerful philippics against the nostrums. And yet, how many of you are not assisting in the dissemination of nostrum advertisements which you garnish with your invaluable scientific writings? Consistency, self-respect and common decency require that you remove yourself from the anomalous position in which we find you. Duty to your profession demands that you do all in your power to right this wrong for which you have been so largely responsible.

In another way you, physician of reputation, aid nostrum advertising. You permit the use of your name as collaborator to insignificant and useless medical journals which gives them an unearned and undeserved reputation and circulation. They thereby become valuable advertising media to fraudulent proprietary remedies. You may never have contributed a single line to the literature of the journal you so greatly favor, but by consenting to be announced as a member of its editorial board you constitute yourself a partner, a silent partner if you

will, to the nostrum makers, a professor emeritus in their school of advertising. I am not charging you with duplicity or insincerity. You are merely in the same class with all of us who have and do prescribe innocently and ignorantly the "nefarious concoctions" of unprincipled promoters. We are all the dupes—the cats' paws—of the nostrum vendors.

It is high time that each of us hold a self-examination to determine his relation to this problem. First of all, we should appreciate that this reform in proprietary remedies is our policy. We were committed to it when we established through the American Medical Association the Council on Pharmacy and Chemistry. We recommitted ourselves in the local society when, by resolution, we endorsed the work of that Council. Let each of us be sure we are giving this proposition whole-hearted support. Let us be sure that we do not "knock" it with the right hand while we "boost" it with the left. Having put ourselves individually right on this question, let us act all together in an earnest effort to emancipate the medical press from the nostrum maker. This is work for our medical societies because it affects the welfare of the profession as a whole. One of the avowed objects of organization is the co-ordination of individual effort to the end of securing the largest returns from the energy expended. Let every medical society concentrate individual effort to abolish nostrum advertising and to bring the medical journals to the support of our reform.

To that end I propose for adoption to this and to every other medical society the following resolutions:

WHEREAS, The cooperation of the medical press is universally recognized as a most influential factor in promoting medical education and the general welfare of the profession; and

WHEREAS, The said medical press advertises worthless and fraudulent proprietary remedies, thereby neutralizing our efforts to abolish the nostrum; and

WHEREAS, Such advertisements prejudice the medical press against our propaganda for reform in proprietary remedies, estrange them from the cause and prevent them from printing the truth concerning objectionable remedies; now, therefore, be it

Resolved, That the Englewood Branch of the Chicago Medical Society, in session assembled, hereby condemns the acceptance of advertisements of nostrums and fraudulent preparations by the medical press; and be it further

Resolved, That we and each of us will make no contribution for publication in any medical journal which advertises such preparations; and be it further

Resolved, That we will not allow our names to appear in said journals as collaborators or coeditors or lend ourselves or our influence in any way in promoting the success of such journals; and be it finally

Resolved, That these resolutions be submitted to each of our members for his signature to the following declaration:

"We, the undersigned, pledge ourselves to the above resolutions:"

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

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DECEMBER, 1908.

PROPOSED EPILEPTIC COLONY FOR ILLINOIS.

The following memorial adopted at the recent meeting held in Indianapolis, of the National Association for the Study of Epilepsy and the Cure and Treatment of Epileptics, is addressed to the Forty-sixth General Assembly about to convene, and is here given as a subject in which the medical profession of the state take a great interest and can do much to further by their influence.

INDIANAPOLIS, IND., Nov. 10, 1908.

To the Honorable, the Forty-sixth General Assembly of the State of Illinois:

Gentlemen:—The National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, in Eighth Annual Convention assembled, respectfully petitions your honorable body to appropriate sufficient funds to establish an epileptic colony in Illinois, under the provisions of a statute enacted by the Forty-first General Assembly of your state. We feel justified in making this petition, because the manifest humanity of the colony system is reinforced by experience, in many American states and abroad, which experience has proved that the colony plan is the most practical and the most economical method of meeting

the great human problem of the proper treatment and care of the epileptic. A most significant verification of this statement is found in the decision by the New York State Legislature to create a second epileptic colony, on the basis of the success of its present epileptic colony at Son-yea and of the agitation in the State of Ohio to create a second epileptic colony on the basis of the success of the first epileptic colony at Gallopis.

MANIFESTATIONS OF EPILEPSY.

Epilepsy is a common disease. It is as old as written history. Its victims have suffered for ages. In dark and ignorant periods of the world even death has been meted out to epileptics, because of a misunderstanding of the nature of their ailment. This disorder is so common that most of you, gentlemen, have seen its victims fall rigidly and violently, gradually pass into severe muscular spasms, sleep a little and then arise and walk away. This is a common type among the many types. Those who study epilepsy more closely note the changes before and after seizures—changes in the intellectual and moral natures of the victim, irritability, violence, murderous violence, untidiness, and gradual mental deterioration as the disease progresses.

The epileptic is dangerous to himself and to others. Often he commits most horrible and brutal crimes, apparently without motive, without responsibility, and without even knowledge of the revolting acts. The seeming most harmless epileptic may in an instant become dangerous. To himself also the epileptic is a constant menace. The seizure usually occurs without sufficiently definite warning to permit preparation for the attack. The patient falls like a stone, without the least possibility of saving himself, for he is unconscious. Severe wounds, burns and all manner of injuries are the result in and out of public institutions. The confirmed epileptic is apt to bear many scars as the marks of his disease.

Epilepsy also incapacitates its victim for the ordinary occupations of life. He can not be employed in positions of responsibility. Everywhere he is barred from employment. The shock of seeing him fall and go into convulsions is too great for the sensibilities of other employés and customers. He is barred also from social intercourse with his equals. He dare not go to public meetings. Each case, no matter how slight its manifestations usually are, is apt to tear off its disguise at any moment with resulting unpleasantness and danger.

EPILEPSY NEARLY AS WIDESPREAD AS INSANITY.

The disease is far more general than is supposed. Careful census made in various places show that epilepsy is at least nearly as widespread as insanity. Perhaps it is more common. The average figures run from one epileptic to five hundred of population to one to three hundred. Take the census of the city or county you live in and see what a tremendous amount of suffering this means in your locality.

And the horror of it is that epilepsy is in a large measure a preventable disease. Heredity plays the most important rôle in its causation,

as it does in insanity, yet our laws practically license marriage to any one of sufficient age. Until this is changed no great lessening of the number of epileptics can be expected. There is a great epileptic population now living which must be treated and cared for. Their condition to-day is far better than a few years ago. Their needs have been studied and are gradually being supplied by commonwealths and religious organizations.

PUBLIC CARE OF THE EPILEPTIC.

The first special public institution for epileptics was established so recently as 1867 at Bielefeld in western Germany. This was called the Bethel Colony. In 1888 a colony was founded in England by private philanthropy. In 1892 Ohio opened its institution at Gallipolis. From these beginnings the movement has grown splendidly. In Germany there are 50 institutions having special provision for epileptics. Switzerland has three, Holland two, Belgium also makes provision for epileptics. England now has nine institutions, of which four or five are of some size. Australia has an institution. In this brief summary reference is made to sane epileptics. Everywhere, as in Illinois, insane epileptics are provided for as insane persons, and only too often the real injustice of sane epileptics confined with insane persons is met.

Following the lead of Ohio, which in its institution cares for both sane and insane epileptics, New York was the second American state to found an epileptic colony. This was at Sonyea in 1894. This institution is for sane epileptics. Following New York, Massachusetts, New Jersey, Kansas, Missouri, Texas, Indiana and Pennsylvania have been added to the list. Virginia and North Carolina have made provision for epileptic colonies. Michigan and Minnesota have institutions for feeble-minded and epileptics. In the province of Ontario there is an institution for epileptics.

In the United States to-day there are the following state colonies, with the populations as stated:

State.	Population.
Ohio	1,377
New York	1,237
Massachusetts	700
Pennsylvania	600
New Jersey	266
Kansas	400
Texas	286
Missouri	150
Indiana	87
Total	5,103

The reasons which are given in the foregoing are sufficient to prove that the epileptic is best off removed from ordinary society. It is a strange yet fortunate thing that epileptics are remarkably sympathetic to the needs of each other, and the devotion with which one epileptic will watch another through a seizure, safeguarding him as far as possi-

ble, is often beautiful to see. This is another of the many reasons which make it desirable that epileptics live together.

Medical science has as yet failed to discover the cause of the disease, probably because each case is a problem in itself. Cures are not numerous. Segregating epileptics in special institutions has contributed much to our knowledge of the disease and has advanced especially our knowledge of the symptomatology and treatment of the condition. Where a few years ago the epileptic was stupefied with sedatives and made to live a living death, now, under colony regimen, sedatives are used as little as possible, and an effort is made to find the best treatment for each case. Strangely enough, the same agents which are so beneficial in combating tuberculosis are of the greatest benefit in these cases. Work in the fresh air and good, wholesome and carefully chosen food are better than medicine. Colonies with their large farms provide this to advantage and are thoroughly proven to be the most satisfactory method of treating and caring for this disease.

Segregating in special institutions has another great advantage. It prevents the propagation of the disease by the marriage and intermarriage of epileptics. The great advantages of this are lessened in some states by the fact that the colonists are voluntary inmates of the colony and can not be held against their will except in cases where their condition is immediately dangerous to themselves or to others.

ECONOMIC SIDE OF THE QUESTION.

The economic side of the question is also of importance. The epileptic is not generally capable of self-support and is often a charge on his family. In an institution, where there are many like him, special provision can be made to utilize his work to the fullest extent. This, of course, should be the case with every public charge. Each should return to the state for his treatment and care as great an equivalent in work as is possible. Because of this work the public cost of maintaining the epileptic is less than the cost of maintaining the insane. The average earnings of the epileptics in the Craig Colony at Sonyea, N. Y., is \$35.00 per annum.

The general statements made in this memorial are based on a mass of facts and figures too voluminous to present to your honorable body in so brief a paper. Let us reiterate that the public care of epileptics in colonies is shown by experience to be in every way best for their interests and for the interests of the general public.

Therefore, the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics presents this memorial to the duly chosen representatives of the people of the State of Illinois and respectfully petitions the Forty-sixth General Assembly to complete the good work planned by the Forty-first General Assembly by appropriating sufficient funds to build, equip and maintain, until the next legislature, a state colony for epileptics.

We hereby direct Dr. J. F. Munson, secretary of this organization, to transmit a copy of this memorial to the Governor and to the presiding

officers of the Senate and House of Representatives of the State of Illinois not later than the 10th of January, 1909, with letters to the presiding officers, respectfully requesting that the memorial be read, printed in the respective journals and referred to the proper committees.

NOTE.

The foregoing memorial was offered on Nov. 10, 1908, by Dr. Everett Flood of Massachusetts and unanimously adopted by the association.

CHANGE IN THE ADMINISTRATION OF THE SANITARY AND MEDICAL AFFAIRS OF ILLINOIS.

President William L. Baum, in his address to the House of Delegates at the Peoria meeting last May, advocated a radical change in the administration of the sanitary affairs of the state by the abolition of the present State Board of Health and the appointment of a Health Commissioner and the formation of a Board of Medical Examiners whose sole duty it should be to examine candidates for the practice of medicine and midwifery. Dr. Baum's language on this subject is so clear that we reproduce it in full as follows:

"I also strongly recommend and urge that the House of Delegates consider the advisability of advocating a revision of those sections of the medical practice act dealing with the licensing power of the State Board of Health. During many years the duties and responsibilities of the State Board of Health have grown to such an extent that it hardly seems fair that busy practitioners living at widely separated points in the state should be held responsible for the acts of the executive officer of the board. It must be apparent to all that a revision or an amending of these laws is necessary. As a first step in this direction, I would suggest the creation of a State Department of Public Health at whose head there should be placed a Commissioner of Health, who is to receive an adequate salary and whose duties should be similar to those of the commissioner of health in large cities. This official could be appointed by the Governor and would, therefore, be responsible to the state administration for all his acts. I have been assured by the President of the State Board of Health, Dr. George W. Webster, that such a change in the laws would meet with his hearty cooperation.

"I should further recommend the creation of a State Board of Medical Examiners, whose duty it should be to examine all applicants for licensure to practice medicine and midwifery. The Secretary of the Board should be paid an adequate salary and should devote all or a large portion of his time to this work.

"All the progressive States in the Union have a separate Board of Medical Examiners, apart from the Board of Health, because the functions of the Examining Board are of very great importance to the people of the State. Illinois should not be behind other States in this respect."

A conference of medical leaders was held in Chicago Thursday, November 19, to further discuss this matter. A full report of this meeting will be found in another column. Those attending the conference were: Drs. Carl E. Black, J. M. Dodson, G. W. Webster, H. N. Moyer, C. L. Mix, J. W. Pettit, J. V. Fowler, N. P. Colwell, M. S. Marcy, J. F. Percy, F. R. Green, D. N. Eisendrath, R. B. Preble, C. C. Hunt, T. L. Gilmer, G. E. Baxter, A. C. Cotton, C. S. Bacon, C. A. Wells, Geo. N. Kreider, W. L. Baum, W. A. Evans, E. M. Eckard, Frank Billings, G. H. Simmons, M. L. Harris, A. D. Bevan and E. W. Weis.

The medical and sanitary affairs of the State were thoroughly discussed by those present, and it was the unanimous conclusion that the Council take up the matter of preparing bills, looking to the appointment of a Commissioner of Health and a separate Board of Medical Examiners.

As a change seems desirable and probably will be consummated, we suggest that local societies make a full investigation before taking any action whatsoever at this time.

CONFERENCE ON MEDICAL LEGISLATION.

At the regular quarterly October meeting of the Council of the Illinois State Medical Society, the Council instructed Chairman Black to call a general meeting of conference of the officers, Council and committees of the State Society, the president of the State Board of Charities, and the president of the State Board of Health, as well as a few of the representative members of the profession of the State of Illinois. The instructions further stated that this meeting should take place shortly after the general election.

Chairman Black called this meeting to be held in Chicago, November 19, at 6:30 p. m., at the Chicago Athletic Club, at which the following were present: Drs. Carl E. Black, J. M. Dodson, G. W. Webster, H. N. Moyer, C. L. Mix, J. W. Pettit, J. V. Fowler, N. P. Colwell, M. S. Marcy, J. F. Percy, F. R. Green, D. N. Eisendrath, R. B. Preble, C. C. Hunt, T. L. Gilmer, G. E. Baxter, A. C. Cotton, C. S. Bacon, C. A. Wells, G. N. Kreider, W. L. Baum, W. A. Evans, E. M. Eckard, Frank Billings, G. H. Simmons, M. L. Harris, A. D. Bevan and E. W. Weis.

Chairman Black opened the proceedings by briefly presenting the subjects for discussion as follows:

The sanitary conditions and the condition of medical education, examination and licensure have been the subjects of much discussion by the physicians of Illinois for several years. While the relation of the organized medical profession which this gathering represents, and the Illinois State Board of Health which has charge of the above matters in this state, has never been close as it should be, the discussions of the past months have made this breach intolerably wide. The State Board of Health should have the endorsement and the co-operation of the medical

profession in all that it does. The present board finds itself hampered in its work by the lack of such endorsement and co-operation and has found itself beset by political conditions which make efficient work almost impossible. It needs assistance. It is not granted sufficient funds with which to carry on the necessary work, and many of the laws under which it operates are antiquated and inefficient. This is true of the law regarding vital statistics; the board has no power to organize and control local boards of health; the medical practice act which it is called upon to enforce does not give it sufficient power to reach offenders, and the midwifery law is worthless. A portion of the failure of the board to give the state a broad, liberal and efficient organization of its sanitary department and control of medical schools, medical education and medical practice is due to inefficient laws which should be improved. The organized medical profession has found much fault with the work of the State Board of Health and its failure to accomplish results for Illinois. The report of the Committee on Medical Education of the Illinois State Medical Society, as well as the report by the Council on Medical Education of the American Medical Association, has shown that in matters of medical education and medical examination and licensure Illinois has fallen behind her sister states. These conditions having been brought to the attention of the council, led to numerous conferences between the council and the board of health and the council and the Governor for discussion of the ineffectiveness in these departments. This meeting is only another step in the series of discussions as initiated by the council for devising ways and means for improving conditions. It is of no importance for the purpose of our discussion to-night where the fault is for these conditions. The practical question is how we can secure more efficient laws and devise effective working methods which will secure practical results for the people of our state.

At the last meeting of the Illinois State Medical Society the president, Dr. Baum, proposed that we make an effort to secure a commissioner of health for Illinois, such commissioner to be a member of the Governor's cabinet. This proposition was endorsed by the House of Delegates. It has also been proposed from time to time that we should have in Illinois a board of examiners separate from the board of health, which should have charge of the whole question of medical education. Several years ago one of the Presidents of the state society, in his annual address, proposed that we make an effort to secure a state board of education or a board of regents similar to the University of New York. Therefore these two questions will be presented for our consideration at this meeting. It will be in order, however, to consider any allied questions which any one present may desire to bring up.

Dr. Wm. L. Baum opened the discussion, taking up the subject of the Commissioner of Health. He, when president of the Illinois State Medical Society, made this recommendation to the House of Delegates. He gave his reasons why he believed the change would be beneficial and would inure to the best interests of the people of the State of Illinois.

Dr. Bevan took up the subject of medical education in the State, showing a deplorable condition to exist. Compared the medical educational features of this State to the other States in the Union. He insisted that a radical change must be inaugurated if Illinois is to be classed in the forefront of high standards.

Dr. Billings spoke on the medical educational feature, suggesting the advisability of a committee to carefully study the situation and advise the best possible solution.

Dr. C. S. Bacon spoke of the model bill on medical legislation that is now in process of preparation by the Committee of the American Medical Association. He spoke of the advantage of uniform laws being adopted by all of the states, and showed that at the present time the health laws of the various States are unsatisfactory and in many instances contradictory.

Dr. Colwell presented a pamphlet—The Supervision of Education in New York—and explained the working features of the same.

Dr. M. L. Harris stated that the entire subject presented two distinct phases—one educational and the other public health. He stated that heretofore the laws of the State of Illinois were too narrow, too restrictive in their scope and lost sight of the fact of a broad and comprehensive application.

Dr. Pettit discussed all phases of the subject in a thoroughly capable and efficient manner. He showed the difficulties in the way of obtaining needed legislation, and insisted that we should be first certain of our premises before demanding compliance of the same by the legislature. He said that out of the present time should be a campaign on education; that is, of acquiring a knowledge of what is needed by the people and by the profession.

Dr. Geo. W. Webster urged the adoption of a vital statistic law, such as now is in operation in the State of Pennsylvania. He also treated exhaustively the subjects otherwise under discussion, giving comparative data on the health laws of the various states, presenting an interesting fund of information.

Dr. Frank Billings here offered a resolution that Drs. Bevan, R. B. Preble, A. J. Ochsner, M. L. Harris and Lewis C. Taylor be a committee to confer with the Education Commission; also that the allied professions be requested to appoint similar committees for the same purpose, the committees to report to this conference at some future meeting. After considerable discussion the resolution was declared adopted.

It was moved by Dr. J. M. Dodson that the Council of the Illinois State Medical Society be requested to draft bills for the appointment of a Commissioner of Health and a separate Board of Examiners, these bills to be presented to this conference at some future meeting. Carried unanimously.

Dr. C. S. Bacon moved the following: This conference recommends to the Council for the endorsement of the bill on vital statistics as it shall come from the American Medical Association, American Public

Health Association and amendments agreed to by the Census Bureau, State Board of Health and the Health Department of the City of Chicago. Carried unanimously.

It is moved by Dr. Billings and carried that this conference is in favor of a law that will allow a fifth-year student to practice medicine in a hospital without a license.

Dr. Billings explained in full detail the proposed bill (administration bill) relating to the control of charitable and penal institutions of the state, and asked the endorsement of this conference for the same.

It was moved by Dr. Pettit that we pledge ourselves to the State Board of Charities on all matters of legislation which they propose. Carried.

Moved to adjourn to meet at the call of the chairman.

E. W. WEIS, Secretary.

OHIO STATE BOARD ANNOUNCEMENT.

We call particular attention to the official notice of the Ohio State Board of Medical Registration Examination which appears in another column. This action of the board is doubtless the result of the editorials appearing in the December, 1907, and January, 1908, issues of this JOURNAL and should serve to put a stop to certain abuses which appear to have arisen in this state.

DIVISION OF FEES.

Dr. John C. Munro of Boston, surgeon in chief, Carney Hospital, in an address on "Surgery" before the Canadian Medical Association June 10, 1908, made the following statements regarding the division of fees:

"The public has certain rights in the question of surgical fees. The surgeon has equal rights, but he seldom obtains them. To take up the abuse of medical charity would lead me too far from my subject; that such an abuse exists, especially in the eastern part of the States, is too flagrantly evident to need any confirmation here. To some extent the existence of this abuse is responsible for the overcharges to which surgeons are occasionally driven. All patients, except paupers and some wage earners, should be compelled to pay a fee for medical and surgical care commensurate with their earning capacity just as they are obliged to pay for their provisions, their luxuries or their dissipations. The wealthy should pay liberally for major operations; they should not be robbed. The self-respecting wage earner, whether on daily wages, a salary or in independent business, should not be treated as a pauper. He should be compelled to pay some fee in proportion to his earnings, the number dependent on his income, etc. The public has abused over and over again the medical charity that flourishes to such a degree in our large cities. May it not be because of this abuse that the struggling

surgeon is guilty at times of squeezing all that he can from his wealthy client? Our practices need reforming without doubt, but the abuse in this respect is infinitely less than that practiced by the public which is competent to pay.

"That surgeons divide fees with the family doctor bringing them surgical cases is a well-recognized evil. Fortunately it exists to a much smaller extent in the East than in the West. That it is fundamentally wrong and pernicious goes without saying. It is based on commercialism alone. As soon as the public realizes that it is deliberately sold by its family doctor, in whom it has full confidence, to the surgeon that allows the largest graft, and that it is not sent to the surgeon best equipped for taking charge of the case, the public itself will stop the practice at once and emphatically. It seems inconsistent with American character that a patient should be bartered voluntarily.

"To kill the growing tendency toward a division of fees it is necessary to keep the public informed as to the facts. Whether this should be done through our local or national societies is not yet clear, but I believe that it is best undertaken by the larger body of men. A curious and annoying type of graft that is not infrequently worked upon the surgeons is that in which the family physician, who presumably knows the financial status of his patient, makes one price for operation to the patient and another much smaller price to the surgeon. To expose this it is necessary that the surgeon have his business dealings directly with the patient, thereby losing, of course, all future work that might otherwise come to him from the family doctor whom he has exposed. The public has the right to know how much it pays for surgical care and to whom the amount is paid. The moment we begin to juggle with it in this respect we lose the right to pose as a profession, the first object of which is not to make money."

Commenting on Dr. Munro's paper, *Life*, a widely read lay journal published in New York City, says:

"The surgeon, of course, has not the opportunity to drum up trade that the family physician has. He has to wait, more or less dependent upon his previous reputation, for cases to be brought to him. No surgeon can afford to starve, in a country where so many cases are going to seed anyway, for want of proper operations, and, therefore, it follows that some inducement must be offered to the family physician. This inducement is lowered in proportion as the surgeon's reputation increases, the consequence being that the family physician recommends to his patient the most incompetent man, because there is more money in it for him. The patient seems to 'get it' both ways."

An eminent member of the medical profession makes the following statement on this subject: "Is it any wonder that *Life* has it in for the medical profession when there is reason for Dr. Munro's remarks, and even greater reason for *Life's* comment? It is a shame that the whole profession must suffer on account of the damnable practice of so many of its members."

Another prominent physician says: "This question, in my estimation, is a most vital and a most important one for the medical profession of the future. We can discuss the ethics of it as much as we please, but the patient—the public—is the one who will pass judgment, and the public will gradually learn if it becomes a rule to give commissions without the knowledge of the patient. If it is all right to divide the fees, the sooner we know it the better, so we can all do it. Then we ought to have an understanding as to what the amount should be. Candidly, I think this would be all right if the patient is to know it. In all seriousness, I think this matter should be thoroughly discussed. The fact is, summed up it means that if there is to be a division of fees, it must be without the patient's knowledge, and I would like to see some one with courage enough to come out and defend such dishonorable procedure."

We also call attention to an anonymous communication in this issue of *THE JOURNAL* which takes up this matter from the standpoint of a surgeon in one of the smaller cities of Illinois, thus bringing it home to our own members. We shall leave further editorial discussion on this subject until the next issue of *THE JOURNAL*, and in the meantime hope to receive still further communications from our members upon this subject.

Correspondence.

SPLITTING THE FEE—THE SURGEON'S VIEW.

To the Editor:—In the April, 1907, and the August, 1908, *JOURNALS* are two editorials of interest in the discussion, which must be elicited from the article by Dr. David W. Reid on the "Influence of Specialism on the General Practitioner" and the letter by Dr. J. H. Fulgham in the November issue of *THE JOURNAL*. The editorials, in one case, take up the question from the idealistic side; in the other, from that of the general practitioner. The articles in the last issue of *THE JOURNAL* also discuss this question; but, again, from the standpoint of the general practitioner. No one seems, so far at least, to be willing to take up the question and discuss it from the standpoint of the surgeon. The writer is a surgeon, or at least thinks he is. He was also a general practitioner before becoming a surgeon. He also practiced in a small country town for years, and finally moved to a small city, where he continued to practice general medicine. While in general medicine he did no surgery, except of the minor class. His major surgery went to the nearest large city. He never even thought of asking for a part of the fee which his patient paid the surgeon. He always informed the surgeon what he thought the patient could stand in the way of a fee, and it never occurred to him that he was committing any crime in so doing. He had many cases operated on that could pay no fee, and he

never found a surgeon who was unwilling to thus aid him in the treatment of his case. He never asked the surgeon to let him assist at the operation, because he had, even in that early day, sense enough to know that he had not had the requisite training or experience to make him worth much either as a safe or a valuable assistant.

Finally, in an evil day, he himself decided to become a surgeon. He had saved a little money. His idea of becoming a surgeon was to blow in this money in learning how to do surgery. Going to one of the large cities, he paid one of the surgeons to give him two hours a day in a veterinary college while he operated on dogs. Other hours he spent in one of the college dissecting rooms, where he paid rather liberally for exclusive instruction in anatomy. In this way he managed to get rid of all the money he had saved, and had to return home to again enter into general practice to get more money in order to fit himself for the work of the surgeon that he hoped to be. In the meantime he built a laboratory in his cellar for experimental surgical work, where he worked as often as he could until he was finally able to make most of his dogs live, after operating on them abdominally. When he got money enough he went to New York and paid liberally for a course in surgical diagnosis and served as first assistant to a real surgeon. Two months were spent in this way, and this was repeated twice again. He then began to think that possibly he was justified in trying to operate on a simple ovarian cyst when one presented. It did finally, and was put in the hospital for operation. For fear that he might jeopardize his patient's life unnecessarily from his inexperience, he sent to a neighboring city and had a surgeon of repute come and stand over him as general eritie and guide while the operation was being performed. He paid that surgeon—not only for this case, but for many subsequent ones—all the fee that he received for the operations. Finally he began to do his work alone, as far as outside help was concerned.

Next he borrowed money at 6 per cent. interest and went to Europe, where he spent eight of his ten months working under two of their great surgeons, at the same time doing a lot of pathological and bacteriological work. Upon his return from Europe, he decided to give up all general practice, including obstetrics, of which he had had eighty cases the last year of practice. The income from this source was thus completely cut off. He reasoned that, if he was no longer a competitor with his colleagues in general practice and obstetrics, they would, at least, refer those surgical cases to him that they did not feel qualified to handle themselves. Did they do it? To use no stronger expression, No! This man had had the largest general practice in his city. He was well thought of by his fellows, i. e., if he died at any time while he was struggling for a surgical practice, they would all have attended his funeral and said nice things about his future prospects as a surgeon had he lived. They would even say nice things about him while he was yet living, in cases where their praise could do him no particular harm. He frequently had the experience of seeing men who had benefited most from his going out of general practice employ another physieian, also

in general practice, but who was doing surgery on the side—for their surgical work. Finally he rose to the dignified position of being called in, after operations of this kind were going wrong, to help tell the family of the doomed patient that all had been done that could be done. Then, again, he began to be called in to assist an untrained physician to do an abdominal operation. The result usually was, in cases that recovered, that the trained assistant's name was never mentioned, and no part of the fee was ever paid him. In the cases that died his name was almost always given out by the operator as the one who had performed the operation.

After suffering in this way for a few years, he found that he was forced to submit to another imposition, in that he was frequently asked if he would come to the hospital and "assist" at an operation that was already under way. The would-be operator, after getting into it, had gotten cold feet and needed help. Thus he was forced either to refuse and be damned for the refusal, or go into a case in which he had been given no chance to work out the best surgical procedure by mature thought and consistent preparation. The result, thus, was often not good, and sometimes worse than this; and the disadvantages of the situation usually fell upon the surgically trained assistant, especially when the financial end was finally reached.

But this trained operator who had gotten to this enviable position was an optimist. He reasoned that finally his professional brethren who were not surgeons would recognize his fitness for this special and important field of practice, and, if he was patient and courteous, and, above all, professional, they would do him the honor of recognizing all this and so turn enough of their surgical work to him to at least pay him for remaining out of the field as a competitor in general practice. Did they do it? With the exception of a few greatly appreciated exceptions, they never did. By this time the question of doing an exclusively surgical business in a small city, and getting a living out of it, had become a bread-and-butter question with this surgeon. It was a serious proposition with him whether to go back into general practice or try to get surgical work referred to him from the physicians who were practicing in the surrounding towns. After a great deal of misgivings as to its wisdom, he tried the latter plan and remained out of general practice. This was a slow process, but it proved to be a little better plan than the one that he had been following.

As his reputation grew along surgical lines, he began to have referred to him not only surgical, but medical cases. These latter had usually not been referred. They had come because of the reputation among the people that had surgery for its foundation. With these latter came the old temptation to keep them and thus to build up an office consulting practice along medical lines. The fees for a good general examination were attractive. The complete medical examination was pleasing to the patient, and they were willing to pay this surgeon a much larger price than they would have thought of paying their home physician. It was

easy to reason and to agree with one's self that, as the home physician of these patients would not prepare himself for making these examinations, it was not robbing him of anything. But, finally, the desire to keep these patients was resisted; the plan was adopted of making the examination and turning the patient back to the family physician, with a report of the findings from the examination. As a part of this a nice talk was given the patient and his friends as to the splendid medical ability and general qualifications of the physician that they had left. They were advised to go back to him, with the further statement that "the doctor and I will consult together whenever he thinks it necessary to do this." This was followed by a letter to the family physician in question, and which gave in detail the results of the examination with suggestions for treatment, and a gentle hint that these patients had come because they thought the family physician had not been quite interested enough in their particular complaints.

With most of the physicians this worked charmingly. I have now a great many appreciative letters from these men, and I feel a lot better for having received them. But, on the other hand, it is surprising what a large percentage of men there are in the practice of medicine to-day who have not appreciated, and who do not appreciate, the genuine professional courtesy that is back of this kind of treatment. These are the men who seem to have the mistaken notion that they have a mortgage on every individual who has ever consulted them regarding their health. They usually carry this resentment so far that it ends in their compelling the patient to consult some other physician in their locality. The surgeon who is writing this letter looked over his records some months ago to learn how many of this class of patients were surgical cases and needed in a legitimate way his services. He was surprised to find that out of every hundred patients who consulted him but twelve were surgical. In other words, he turned back to the general practitioner 88 per cent. of his cases. The 12 per cent. that were left as surgical risks for him (the surgeon) were also turned back to the family physician, where it could be done—as it could be in the largest share of them—with the recommendation that they take his advice as to the final treatment of their case, surgical or otherwise.

Now, after doing all this, what has been the result? And here is the rub from the standpoint of the surgeon in the smaller cities of Illinois to-day. This surgeon who finally, after years of effort, got the tide turned his way, finds that he is asked to give a greater or less share of the operative fee to the doctor who has done nothing to earn it, except the mere accident of having the patient consult him. This surgeon has played the game fair. He qualified himself in the first place. He has remained strictly on his own preserves. He has found that surgery, if he is to keep in the race with his own kind, is an expensive business to acquire, and at last, when he has acquired it, he comes up against the general practitioner who by the mere accident of position, being first in the game, demands a varying sized slice (dependent on his conscience) of the fee which by every standard of justice belongs to the man who

does something for his patient that he himself can not do. This surgeon attends medical meetings and he hears papers read on how the general practitioner should do his own surgery. He picks up medical journals and he finds articles such as those referred to in the beginning of this letter and which have inspired this reply. And, finally, as a practical application of the whole thing, he finds that he is asked to give outright—merely as a gift—a generous part of that which he is to receive as a fee after taking all the risk for a final failure; and if this comes, with it the consequent loss of reputation. The surgeon finds, too, if he will do it, that he is dealing in many instances with men who care nothing for him personally or for his reputation. He finds that to-day, if he gives one of them half of the fee, that to-morrow this same man is looking for a surgeon who will give him three-fourths of the fee. The result, if it does not end in the death of the patient, does not seem to be considered, except incidentally, perhaps.

The writer has in mind a country physician of large practice, who at one time sent him all of his surgery. To-day he is sending all of his work to a surgeon of more or less shady reputation in one of the large cities of Illinois, and, as he told me frankly, getting half of the fee. While he was sending me his cases I protected his reputation in a case that was practically the beginning of a suit for malpractice. I enhanced his reputation in every way that I honestly could. Now he does me the honor of sending me his cases that are too ill to be moved to the said large city, and again those that are too poor to pay any fee for any operative work. Twice within a year he has sent me cases in which he was not qualified to say positively that they needed operation; but, as they both did, they were promptly sent to the man who is dividing the fee with him. If this was an isolated instance, I would not mention it; there are others.

Another phase of this question, now that we are happy in talking about it, is the one where the general practitioner chooses as his operator a man who is doing general practice, and whose surgical work is merely an incident in his career. Why he should choose a competitor in the same line of work is beyond my comprehension. In my own city, the writer, as has been stated, is doing absolutely nothing but surgery. It is also true that there is not a medical office in the city but that he can go into and be treated cordially. This as proof that there is no personal animosity against him; and yet he sees men in his city choosing for their surgical work the inexperienced practitioner who is in direct competition with them. It would please me very much if some one who is doing this thing—because it is done in other places—would explain what is back of it. There must be some honest and good reason, and I know it would be helpful to many surgeons, situated as I am, to know what they are. The writer got his training as a surgeon under the direct supervision of other men. The most of the surgery that is being done to-day, or at least attempted, is being done by men who are getting their preliminary experience on their patients without any previous sur-

gical training, and they are being helped to commit these crimes against their patients by the general practitioners. Now, this is a sweeping statement, and we all know, as well as the writer, that it is not true in all cases. There are many practitioners who can and do choose the men to do their surgical work who are really surgeons. If this were not true, the lot of the honest qualified surgeon would be much worse than it is. But what I am talking about is the common general practice that obtains among the practitioners of Illinois. That this condition will cure itself in time I have no doubt. The public will gradually learn the difference between the trained and the untrained surgeon; will learn that diagnosis is a great part of surgery, and that the untrained man is not a diagnostician—how can he be? Many lives will be sacrificed, and many reputations blasted in the process; but come it must, because both honesty and truth are back of the real education of the public in matters that affect their health and happiness.

But this optimistic statement holds out little for the trained surgeon who is already in the field and depending upon it for his professional happiness, to say nothing of his living. It will take care of the honest surgeon of the future. But what about myself? Shall I keep on as I am, making a good living, paying on my life insurance for my family's future comfort, paying interest on money that has gone into my profession, and with it all the everlasting hope that finally I will be recognized by the profession in such a way that I can make more than a good living? I made a good living when I was in general practice. I certainly worked no harder then than I do now. My consultation work calls me into the country so that I am losing rest and getting tired in exactly the same way that I did when in general practice. I do not get much more for it than I did when in general practice, because my fees are usually set by the physician who calls me, and he usually fixes them on the same basis as his own. Few physicians have learned that the more the consultant gets that is earned the more he himself can charge for his work. My responsibility is greater now than when in general practice. I have more reputations to protect, and it is interesting and sometimes discouraging to note how little is done to protect my reputation—when things go wrong—by the only man who is in a position to do it. He slips from under and either damns with faint praise or saves his own hide at my expense. I have had a whole community pronounce my name anathema and the good work of years lost, in a single day, as far as any further profit to me there was concerned. I have seen these same general practitioners, under these circumstances, instead of standing by the man who had tried to help them out of a difficult situation—and often one that they were directly responsible for—calling another surgeon the next time they required the services of one. Of course, this was their privilege; but it is in line with their insisting upon the splitting of the fee.

My letter, Mr. Editor, is getting rather long; yet I have said but little of what I really want to say. If you want to split this letter and

continue what I shall say further in the next issue, you have my permission to do so. My discussion of this subject would not be complete if I did not ask as to the final results on the surgeon of this fee splitting. From a perusal of the article by Dr. Reid and the letter of Dr. Fulgham, one gets the idea that the only sinner is the surgeon. I think I have shown above that the surgeon, too, has his troubles with the general practitioner. I spend money, and I am in debt for it in order to get business. In my case, practically all of my business comes from the general practitioner, because I have studiously refused to try to get business in any other way. But the money that I have spent is returning me a very small percentage, if I am going to give a quarter, a third or half or two-thirds of it to the general practitioner who has not qualified himself to do the work that I am doing. He needs me, under present conditions, more than I need him. Why? Because I have spent the time and striven to become proficient along lines that he cares nothing about; and I can do his work, and my own, too, now.

I have fought this thing of fee splitting honorably and honestly. I believe it is wrong. I believe it is wrong, because I am doing work that he needs to have done, because he can not do it. Why should I pay him under these circumstances? I was a general practitioner for years, as I have stated, and I could not then do the things that I am now doing, because I did not have the training. But I do not want to go into general medicine, simply because I have had a pride for years to be known and recognized as a good surgeon only. This pride has kept me safe; but I must confess that I am weakening a little. I am in a position to ask myself now, if the general practitioner insists upon doing me out of at least a part of my earnings, simply because he is in a position to act as a go-between, shall I continue to stand it when I do not have to? I must confess that this question comes home to me a little more poignantly since one of my surgical friends, a few years ago, decided that he did not have to stand it, so he hired assistants on a salary and established an office which to-day is practically a medical department store. Patients can get any kind of treatment there that they want. He increased his business so that last year it showed 150 per cent. over what it was four years ago when he declared his independence of the conditions over which, before that time, he had no control. This phase of the discussion involves no consideration of the morals of the fee splitting plan. It is no part of my purpose to discuss it here. I will leave that for others to discuss. What I want to point out is that there are two sides to this many-sided question besides the moral; and the general practitioner is not the only one that is to be considered in its discussion.

But I do not feel that I have so far touched the real heart of this question. Back of it all is a cry of distress, and the cry is merely the evidence of economic wrongs in the profession. The real fault is in the general practitioner himself, as is well shown in the editorial in the August, 1908, *JOURNAL* on the adjustment of fees. The average practitioner does not have the courage to charge for his work in harmony with

the advance in the cost of living. It is easier for him, in his inexperience, to try to grab from the surgeon whom he really knows is not getting more than his share, than to increase his own prices for the medical work that he is doing to-day. He knows that he is getting the same prices for his work that was paid twenty or thirty years ago. Recently I was in a neighboring town, and was told, with a good deal of pride on the part of one of the physicians among the four there, that they had raised their prices. Upon inquiry I found that the four had gotten together and after a great deal of discussion had solemnly decided to increase their charges for town visits by the tremendous sum of 25 cents, making the visits thereafter \$1.25. And the doctor added, in the way of comment, "I believe that it was a mistake, because, as near as I can learn, I am the only one of the four that has so far put it in practice." This was the only item in the whole fee bill that was changed. Ye gods and little fishes, what a change it was! The pity of it all! While the doctor and I were talking, along came a farmer who was carrying three beautiful ears of corn. One of them was pointed out as nearly a perfect ear, and I could well believe it because of the marvelous regularity of the kernels of corn on the cob. That farmer volunteered the information that he had received a cash offer that day of \$3,500 for the field of standing corn, just as it was, out of which the three perfect ears had come. Can any one of us fail to understand why this same farmer will go to a city and willingly pay city prices to the medical man who charges him city prices? You can not impress a man who can get a check for \$3,500 for his field of standing corn with a raise of 25 cents on a professional call. It reminds me of one of my colleagues who made a call for me some years ago to a neighboring country town. He had to put up at the hotel over night. One of the other guests was Wild Bill. This gentleman was practicing medicine, and his chief claim to notice was long hair and a buckskin suit. Wild Bill's room was next to that of my medical friend, and upon returning to his room the next morning after breakfast his neighbor had already commenced to talk business to the sick. Wild Bill's first customer was a farmer who came to get a prescription for his boy, who suffered from fits. On inquiry the farmer learned that it would cost him \$10 to get this prescription from Wild Bill. The farmer protested at the price, and mentioned the fact that he could go to his family physician across the square and get one for 50 cents. Wild Bill's reply, as related by my assistant, was worthy of a better cause. "Your family physician is evidently an honest man," said Wild Bill; "he knows exactly what his prescription is worth. I, too, am an honest man, and I know what my prescription is worth—just \$10, please." And soon the sweet chinkle of silver falling on the table came as the certain evidence that the farmer was impressed by the argument. Is it any wonder that Secretary of Agriculture Wilson could say in a newspaper interview within a few days that "there is no great call for doctors or lawyers now. The average brakeman on a railway train gets better wages than the average doctor or lawyer."

That the general practitioner is miserably underpaid is a matter of common knowledge, but he is making no effort to change the conditions, except, as stated above, to grab something from the surgeon who usually is a man who tries to get somewhere near what his services are worth. As to the fee splitting proposition, there are three classes of general practitioners. There is, first, the successful practitioner. His success is based mainly on good work. As a rule, he is not a money maker. But he it is who carries the best traditions of the profession and hands them on to the future. This man would laugh at the idea of receiving anything from the surgeon, and never takes it. The second class of practitioner, as relates to the fee splitting proposition, is the business doctor. He is usually not the highest class of practitioner, as far as scientific attainments are concerned. He is shrewd enough, however, to pick for his surgeon one who really knows how to do surgery. But he insists on a division of the fee, and if he does not get it in one place he will in another. In other words, he looks upon medicine and surgery as a purely business proposition. The word "rake-off" neither disturbs his conscience nor his fears for the future, should the public find he is getting them, coming and going. This man not only collects from the doctor, but he collects from the patient, if he can do so easily, for any time spent in taking him to the hospital. The third class, from the professional but not always public standpoint, are the failures in medicine. They are the men who do not know how to practice medicine, except to make a failure of it. They finally get to a point where they are willing to abort a girl "to save the honor of the family" and risk the penitentiary for themselves. It is this class of men, many of whom frequently have a large practice for awhile, that sell their patients to the highest bidder. Recently I had a patient whom I operated on, and who, when she came to me, would not give me the name of her physician, or her postoffice address, until after the operation. A week after her operation I got a letter each from three different physicians, all of whom claimed her as their patient, and all three intimated that they were the means of sending her to me, with the thinly disguised suggestion that they would send more of I would do the right thing by them in this case.

In closing, let me repeat that the general practitioner is going to force the surgeon to obtain assistance, and, in addition to his surgery, go into general medicine as a competitor with him. Second, the public is rapidly learning that the surgeon is compelled to split the fee, and they are shrewdly guessing, and rightly so, that if they go direct to the surgeon they will save to themselves the middle man's profits. This is only a part of the story, Mr. Editor. I could write more, but my letter is probably already too long. I am not going to sign my name, because, if I did, I could not have made this letter so personal to myself as I have done.

LEGE.

NOTICE TO OHIO MEDICAL STUDENTS.

COLUMBUS, OHIO, Oct. 21, 1908.

DR. GEORGE N. KREIDER, EDITOR ILLINOIS MEDICAL JOURNAL, CHICAGO.

Dear Doctor:—The following notice will be of interest to those who contemplate practicing medicine in the state of Ohio. You will confer a favor upon the Ohio board by its publication.

Very respectfully,

GEO. H. MATSON, Secretary.

The State Medical Board has received information that some medical students, having preliminary educational requirements less than demanded by the Ohio law, have been induced to attend medical colleges in other states, under the impression that after graduation they can return to and obtain a license to practice in Ohio under reciprocity. This should be corrected. All medical students who have or who contemplate matriculating in colleges in other states with such impressions should understand that a license from another state is accepted in place of an examination only. The applicant in all other particulars must comply with the laws of Ohio and the rules of this board. The preliminary educational attainments must be the same as required of students of Ohio colleges.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The November meeting of the Adams County Medical Society was held on the 11th, in the Elks' club rooms, with Dr. J. B. Shawgo in the chair, and an attendance of 27 members of the society. The routine business of the society was transacted, and then adjournment was had to the Hotel Newcomb for luncheon. Dr. Nickerson read the laboratory findings of the examination of a case of intratracheal tumor, a postmortem specimen shown at the October meeting, to the effect that the growth was an epithelioma. The majority of the censors being absent, the application of Dr. G. P. Bearman, Quincy, for membership, was not taken up. Dr. Joseph L. Miller of Rush Medical College, Chicago, was the speaker of the day, and took for his subject The Treatment of Uncompensated Cardiac Conditions. The masterly and authoritative way in which he discussed his theme made the hour one of the most enjoyable and profitable the society has ever experienced. The discussion which followed was entered into by Drs. Ashton, Haxel, Christie, Knox and Williams, W. W. Dr. Miller was given a hearty vote of thanks and also voted in as an honorary member of the society.

C. A. WELLS, *Secretary*.

CARROLL COUNTY.

The Carroll County Medical Society met Oct. 9, 1908, in the Carnegie Library with President Porter in the Chair. There were present Drs. Clay, Colehour, Hunter, Harrison, Johnson, McGrath, McPherson of Hazelhurst, Melugin, Merslon, Metcalf, Nathason, Overholser, Packard, Porter, Powers, Riee, Rine-dollar, Runnels, Schreiter and Brigham of Brookville (Ogle county), and Dr. J. W. Pettit of Ottawa. Drs. Rice, Johnson and Overholser were appointed a committee on resolutions on the death of Dr. Fracas. The program of the meeting was as follows: Afternoon meeting held in Carnegie Library at 2 p. m. Mechanics of Perineal Laceration, Dr. J. D. Lyness; Consumption, Dr. W. E. Clay; Extra Uterine Pregnancy, Dr. J. E. Porter; Sciatica, Dr. J. L. Nathason; Hyperthyroidism and Hypothyroidism, Dr. J. H. Stealy. Evening meeting at Baptist Church, 8 p. m. Organ recital, Mrs. Rogers; vocal selection, Grace Reynolds Squires; address, Dr. J. W. Pettit, president of the Illinois State Medical Society; voeal selection, The Miles Quartette.

The meeting was one of the best that we have held. Dr. Pettit's address drew a great crowd, the teachers and pupils of the Francis Shimer Academy and the High School and many of the thoughtful citizens. Much good will certainly result from the lecture.

H. S. METCALF, *Secretary*.

CLARK COUNTY.

The Clark County Medical Society met in Marshall, Ill., Nov. 4, 1908. Members present, S. W. Weir, Mitchell, L. J. Weir. Members who were on program were absent, but Dr. Anderson had requested L. J. Weir to present his subject, Anatomy of the Liver and Gall Bladder, which he did in detail, exhibiting specimen of pig liver, microscope specimen and drawings. The following resolution was unanimously adopted:

WHEREAS, Many deaths occur annually from strictly preventable diseases; and

WHEREAS, Many millions of dollars are spent by our government to prevent and cure diseases of cattle and hogs; therefore, be it

Resolved, That it is the sense of this society that the principal bureaus performing public health functions should be organized under one national department of health.

Dr. W. W. Bruce, of Casey was elected to confer or correspond with our senators and representatives, urging them to see the importance of this matter and to act accordingly.

L. J. WEIR, *Secretary*.

R. A. MITCHELL, *President, pro tem*.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held Oct. 21, 1908, with Dr. Edwin B. Tuteur in the chair. Dr. Herman von Schroetter, of Vienna, Austria, gave a lantern slide demonstration, with a description of the technic of bronchoscopy. Remarks by Dr. E. Fletcher Ingals.

REMARKS ON DR. VON SCHROETTER'S DEMONSTRATION.

Dr. E. Fletcher Ingals:—Judging from the demonstration this evening, I think that with this instrument we will be able to see more accurately than with other bronchoscopes now in use. I have had considerable experience in the use of bronchoscopes, and on several occasions have found it very difficult to eliminate errors due to reflections from the inner surface of the tube, which often give us a deceptive image. I recall one case where a child had inhaled the metal tube from the end of a lead pencil, in which I and several assistants were positive that we saw it just inside the lumen of the bronchoscope, but I was unable to catch it. The outcome demonstrated that we were completely deceived by the refraction of the rays of light.

I have found it necessary to have two sources of illumination—the internal lamp and the Kirstein or the Killian reflectors. With the tube Dr. von Schroetter has shown us I think the illumination must be more satisfactory.

An interesting feature of Dr. von Schroetter's work is that all his examinations have been made under local anesthesia. He uses cocain rather freely, but no bad effects have thus far been encountered, for which I am particularly pleased. He says that he uses a 10 or 20 per cent. solution of cocain, the 20 per cent. in the larynx and 10 per cent. in the trachea. It is noteworthy that patients are able to tolerate this, for we have seen unpleasant results from much smaller quantities. The pictures he has shown us seem to prove that for diagnostic purposes his instrument is peculiarly good. The lumen of the tube is much smaller than that of a simple metal tube, so that it would be difficult to extract foreign bodies through it, but the glass tube might be withdrawn and another light substituted for the removal of the body when it had been discovered. I join with my colleagues in heartily thanking Dr. von Schroetter for his excellent demonstration.

Regular Meeting, Oct. 28, 1908.

A regular meeting was held October 28, 1908, with the president, Dr. Alfred C. Cotton, in the Chair. Dr. Leon Feingold read a paper entitled "Painful Ischemia of the Left Foot Due to Obliterative Arteritis of Syphilitic Origin, Necessitating Amputation of the Leg." The paper was discussed by Drs. A. J. Ochsner, Daniel N. Eisendrath, A. L. Freund, and in closing by the essayist. Dr. D'Orsay Hecht made some remarks on "Deep Infiltrating Injections in the Treatment of Sciatica," which were discussed by Drs. Peter Bassoe, M. R. Barker, Charles A. Parker, and in closing by the essayist. Dr. Mortimer Frank moved that in place of the regular program on Wednesday evening next, memorial services be held in honor of the late Dr. Doherty. Seconded and carried. Dr. Daniel N. Eisendrath contributed a paper on "Bone Cysts," which was illustrated by numerous stereopticon slides. The paper was discussed by Drs. M. Herzog, Dean Lewis, Max. Reichmann, A. J. Ochsner, and the discussion closed by the essayist.

PAINFUL ISCHEMIA OF THE LEFT FOOT DUE TO OBLITERATIVE
ARTERITIS OF SYPHILITIC ORIGIN, NECESSITATING
AMPUTATION OF THE LEG.

LEON FEINGOLD, M.D.

CHICAGO.

Mr. N. S.—Age 27, family history negative; personal history: had scarlet fever when 10 years old, otherwise had never been sick. Married three years ago, has one healthy girl 14 months old, his wife never miscarried. Denies venereal infection of any kind.

During the summer of 1907 he was troubled with his left foot in walking. When walking for any distance he noticed a feeling of numbness in his left foot compelling him to stop and rest for a few minutes before he could resume. He consulted Dr. Reeves, of Dallas, Texas, who pronounced it a case of weak feet. He said the arch was breaking down and suggested that patient get a brace for the inside of his shoe. In the early part of January, 1908, patient noticed an open sore between the second and third toes, when he consulted Dr. Aronsen, of Dallas, who pronounced it an ulcer and treated it for about three weeks. He happened at the same time to go to a chiropodist to have a corn cut, and upon the latter's assurance that he had cured lots of similar cases, allowed him to treat the sore foot for about two weeks. On February 28 the patient returned to Dr. Reeves, who treated it again for a few weeks and no healing took place, patient suffering agony all the time. He was now sent by Dr. Reeves to Dr. Shilmire, a skin specialist, who, after keeping him under observation for a week, referred him back to Dr. Reeves as a surgical case. On April 1 Dr. Reeves cut and scraped the wound, which hardly bled. A few days later the upper part of the foot became inflamed and the inflammation began to spread. A consultation was held by Dr. Reeves and Dr. Baird and both agreed the trouble to be due to lack of circulation. They spoke of the possibility of an amputation of the leg, when the patient decided to come to Chicago. He was seen by Dr. Jacob Frank and myself at the Columbus Hospital, April 11, 1908.

Examination.—General Condition: He was poorly nourished, greatly emaciated, pupils contracted, tongue moist; suffered a great deal of pain in the left foot, where an ugly sore could be seen, involving the plantar part of the phalango-metatarsal articulations of the second and third toes, a great deal of necrotic tissue involving the deeper structures existed. Anterior part of foot was inflamed upward for about two inches from the wound, which was extremely tender. The entire left limb was smaller than the right; the muscles atrophic. The left foot was livid and colder than the right. Heart and lungs negative; temperature 100.4 F., pulse 110. Urinalysis negative with the exception of a few granular casts which disappeared later. Blood count negative.

He was put to bed on a nourishing diet and hot moist occlusive dressing applied to entire foot twice daily. April 13, 1908, the second and third toes were amputated. No Esmarch was used. There was almost a complete absence of bleeding; sponging of blood was hardly necessary. The wound was left open and packed very lightly with moist gauze and a large moist dressing applied, which was changed twice daily. The patient suffered a great deal of very excruciating pain, particularly nights, which necessitated the liberal use of morphia; this he had already been getting before coming to Chicago.

May 1, 1908. Another general examination was made together with Dr. Kreissl; we found that the patient had a general arteriosclerosis and general adenopathy, no evidences of a primary infection. We concluded that the cause of his local condition is very likely due—in spite of his denial of any venereal infection—to tertiary syphilis, causing vascular changes, and that the pain is due to local circulatory disturbance and is not of nerve origin, as one would likely to be led to interpret severe neuralgic pain with trophic changes. Hence the case was diagnosed as syphilitic arteritis. We immediately instituted anti-syphilitic treatment, such as mercurial inunctions daily and saturated solution

of potassium iodid 15 drops three times a day after meals well diluted increasing two drops daily. The inunctions were changed to gluteal injections of 1/5 gr. bichlorid of mercury and the potassium iodid to iodalbum 5 grains three times daily, increasing it to 10 grains. Later the gluteal injections had to be stopped on account of the emaciated condition of the patient and the inunctions again instituted. There was no attempt at healing of the wound and the pain was excruciating. The anterior and posterior tibial pulses in the region of the calf were feeble. The posterior tibial below the malleolus and the dorsalis pedis pulses could not be detected. Owing to the above findings, amputation above the knee was advised. The family demanded a consultation. Drs. Murphy and Andrews were called, who agreed with our diagnosis, but advised the further continuation of the antisyphilitic treatment for two weeks longer, and if no improvement amputation below the knee at the upper third. No improvement followed after this trial with the exception of a diminution in the size of the glands.

June 2, 1908, a circular amputation of the leg was made at the upper third. No constrictor was used; the bleeding was of a general oozing. The only vessel that spurted a very small stream was the posterior tibial; this was ligated. The bone was covered with periosteum and muscle by means of catgut sutures; the skin flap approximated with silkworm gut and the lateral angles of the wound drained with guttapercha tissue. The wound healed by primary union with the exception of a small area over the tibial ridge that would not heal, owing to the sloughing of the periosteum over that area. We finally decided that some more of the tibia will have to be removed, including the inflamed portion of skin over the denuded bone.

June 16, 1908. One and one-fourth inches of bone was sawed off and the inflamed skin removed; the bleeding this time was more profuse, although no spurting from any arterial trunk could be seen; the stump was now covered by periosteum, the wound partly closed by muscle and skin, the rest treated as an open wound, which healed nicely by healthy granulations in five weeks.

The patient, as you see, is well, and has gained in weight. He is still using occasionally the antisyphilitic treatment and is doing nicely with his newly acquired limb.

Dr. Maximilian Herzog, of the Michael Reese Hospital Laboratory of Pathology, prepared for us the following histo-pathologic report. The vascular changes found are very profound and characteristic. In the large arterial branches are seen endo-meso and periarteritic changes. We find a subendothelial infiltration with round cells, the same infiltration in the muscularis and also in the adventitia. In the larger arteries examined these changes are of a still moderate degree, but in the smaller arteries we find a completely obliterating endarteritis. The same inflammatory changes are found in the veins, there likewise we encounter endo-meso and periphlebitis.

The completely obliterating cellular infiltrations are very frequently seen in small veins. All of these vascular changes are continued into the vessels which supply the nerve trunks. It is a most striking picture to see how the nutritive vessels of the nerve trunks are obliterated and compressed upon by inflammatory infiltrations. These can be seen in the vessels supplying the epineurium as well as the perineurium. The pervascular facies seen in the interior of the nerve trunks are composed exclusively of mononuclear cells; polynuclear leucocytes are not present. A considerable proportion of the inflammatory cells are basophilic plasma cells; and among these here and there a plasma mast cell with its coarse basophilic granulations.

The nerve fibres show likewise a profound change, namely, marked degeneration of the myelin, of the medullary sheath. The myelin is nodular, foamy and completely missing to a considerable extent, however, the axis cylinders do not show any marked changes; they still appear to be quite normal.

The muscles supplied by these nerves and vessels are still in a very good condition, the striation is quite distinct, but there appear to be quite a few nuclei between the endomesia of the individual fibres. These are evidently the

nuclei of small round connective tissue cells and they probably indicate a beginning of interstitial myositis. There is also noticeable a moderate amount of fatty infiltration of the muscles. The silvered sections show no spirochæta, nor can any ordinary bacteria be demonstrated.

The disease has been described by Charcot, Hutchinson, Klotz, Gould and others as a painful ischemia due to an arterial obliteration of syphilitic origin. The name of this disease covers the pathologic and clinical picture admirably. From a study of this and other cases in the literature the following points are to be noted:

1. That it is a disease of adult life and is more common in men than in women.
2. That it is invariably due to a endo-meso and periarteritis of syphilitic origin.
3. That the pain is caused by nerve starvation or nerve hunger.
4. The disease may be very chronic, slowly progressive or may run a much more rapid course.
5. The ischemia varies in degree with the extent of the vascular obstruction and the efficiency of Nature's means of compensation.
6. If gangrene results it varies in type according to the amount of venous obstructions associated with the arterial obstruction.
7. Fever is usually present when the disease is active.
8. The disease may become arrested and the symptoms gradually pass away as the unaffected vessels become more efficient substitutes for those that have been occluded.

DISCUSSION.

DR. A. J. OCHSNER: The principal lesson to learn from this case is that in cases in which we have arteriosclerosis in young patients, together with persistent ulcers of the extremities, with adenitis, which were present in this case, we should attach practically no weight to a negative history. It really does not matter what the history is, these conditions should cause one to think seriously of a diagnosis of syphilis. Of course, the earlier the diagnosis of syphilis is made the sooner will benefit come from treatment. The treatment that is carried out until the diagnosis is made can be of very little benefit to the patient because the changes in the blood vessels must necessarily continue in their downward progress, and so in this case we have this illustration: various forms of treatment until there were no beneficial results, until this ailment was recognized and treated. The result is excellent; the patient has gained greatly in weight, and with continued treatment I have no doubt but what all of the conditions will improve.

DR. DANIEL N. EISENDRATH: We have had a somewhat similar case during the past year at the Michael Reese Hospital, where a man, apparently with no history except that of spontaneous gangrene, had to have one part of the foot after another amputated. In other words, the condition necessitated a number of amputations.

We are usually accustomed to think that arteriosclerosis and such conditions which cause gangrene are necessarily associated with old age, but a case like this and the case I speak of, which has been in the hospital for the past year, and still may require double amputation, teach us that conditions which obliterate the artery and endarteritis can take place at a much younger age than we have been accustomed to think.

DR. A. L. FREUND: The paper by Dr. Feingold is of very great interest not only to the surgeon, but also to the general practitioner. There is one point I would like to emphasize in cases of this kind, and that is, the insignificant appearance of the ulceration to which our attention is first called. Such a slight ulceration as that would not lead one to think that there was anything seriously ailing the patient (before becoming conversant with the history of the case and a closer examination of the condition of the blood vessels). Another point is the excruciating pain. I had a case some years ago in which the pain was prox-

ysmal; it was very excruciating, and would last a variable length of time, and then cease as suddenly as it began. It would come on at intervals of some hours, then disappear entirely, the patient remaining perfectly free from pain during the interval. The remarkable thing about the case was that after amputation the same paroxysmal pain continued in the stump. The patient I refer to was an elderly man in the sixties, who had contracted syphilis late in life, and who had always been very robust and well in every respect until the last few years of his life. In the beginning he complained merely of pain in the tibial region, that continued for some years. Eventually a small ulcer made its appearance in the sulcus between the great toe and the next, and then gradually the skin became gangrenous, involving the toes and foot and finally amputation of the foot became necessary. But this case did not fare very well, principally on account of old age. The patient died ten or twelve days after the operation.

DR. FEINGOLD (closing the discussion): As these cases are very rarely reported or brought before the Society, and as I never heard of any case of this kind reported before, the discussion is apropos. The important feature in cases of this kind is an early diagnosis. If an early diagnosis had been made in this case, probably amputation would have been avoided; but since the condition had progressed so far that the blood vessels were occluded from the ankle down, it was not possible to save the limb. It was, however, only possible to arrest the progress of the disease by the heroic antisyphilitic treatment. This disease is usually thought to be of nerve origin. So great an authority as Hutcheson, of England, mistook this disease for a neuritis. He records a case which gave a similar history, attended with severe pain, and he made a diagnosis of neuritis. Twenty years later, after reading the description of a case reported by another man in which the pain was attributed to vascular changes, Hutcheson concluded that the case he saw twenty years previously was one also due to vascular changes, and not of nerve origin. Early diagnosis in these cases should be our principal aim.

Dr. Eisendrath read a paper on "Bone Cysts."

DISCUSSION.

DR. DEAN D. LEWIS: Bone cysts are most common in early life. Mikulicz collected twenty-four cases. Of these twenty occurred before the twentieth year, two between twenty and thirty, and two between thirty and forty.

The contents of bone cysts should be examined bacteriologically. Bacteriological examination has often been neglected. In one case reported by Braun, in which the hemorrhagic gelatinous contents were similar to those associated with cysts developing in osteitis fibrosa, staphylocoeci were found.

Bone cysts are essentially benign, being characterized by a long clinical course and an expansive growth, which causes a pressure atrophy of the surrounding bone. This characteristic growth enables one to differentiate, in the majority of cases, between central sarcomas and bone cysts. As these cysts are so benign, a conservative operation should be performed. The wall of the cyst should be chiselled away and the contents, together with the lining membrane, curetted away. The cavity should then be thoroughly carbolicized, the carbolic acid being neutralized with alcohol. After the cavity is thoroughly dried a Paquelin cautery being used for the purpose, a bone plug, preferably the Mosetig-Moorhof, may be inserted and the wound closed.

The patient to whom Dr. Eisendrath referred had symptoms, consisting of pain and weakness, in the left wrist for twelve years. When she presented herself for examination the lower end of the radius was expanded and tender. The pain was suggestive of a bone abscess, but the contents of the cavity differed altogether from those usually found in bone abscesses, and the bacteriological examination of the tissues was negative. It may be possible in this case that the lesion was produced originally by an organism of low virulence which eventually succumbed to the bacterioid effects of the tissue fluids leaving the granulation tissue found in this cyst.

The pathogenesis of these cysts is not clearly understood. Some seem to follow the liquefaction of enchondromas; and others liquefactive changes associated with osteitis deformans. In some cases I believe it difficult to exclude infection of bone with bacteria of low virulence, the granulation tissue resulting from the infection not undergoing necrosis but remaining as the hemorrhagic gelatinous contents of the cyst.

DR. MAX REICHMANN: Dr. Eisendrath has mentioned a book written by Rumpel from the clinic of von Bergmann. I have studied this atlas of Rumpel on bone lesions very closely and Dr. Eisendrath has forgotten to mention one characteristic in the differential diagnosis between sarcoma and bone cysts, that is, that a bone cyst always shows the whole width of the bone involved, while a sarcoma shows only one part of the bone involved. Furthermore, sarcoma occurs usually at the epiphyseal end of the long bone, while a cyst, as Dr. Eisendrath has said, occurs mostly in the diaphysis. Rumpel's book calls attention to the similarity of the Roentgen picture to enchondroma and bone cyst, and concludes with Ribbert, the latest investigator of the pathology of tumors, that bone cysts are nothing less than liquefied enchondromas.

DR. A. J. OCHSNER: I have had a number of cases of bone cysts that I am going to report some time. An important point is the fact of their relative non-malignancy. A second important point is that they can be diagnosed with almost absolute certainty from the skiagrams, so that with these two facts in view amputation will be indicated in sarcoma, while in bone cysts a simple operation will suffice. The condition of the scar in Dr. Eisendrath's case looks suspicious to me, and I should not be very much surprised if this should turn out to be a sarcoma. In fact, I believe it is a sarcoma and not a bone cyst.

DR. EISENDRATH (closing the discussion): In reply to the remarks of Dr. Reichmann, I tried to bring out in my paper the points which he mentioned. I believe I showed that sarcoma is not like a bone cyst, present in the center of bone, but that a sarcoma begins, as in the case of Rumpel, at the lower end of the femur.

In regard to the point mentioned of sarcoma beginning at the epiphysis and bone cyst in the diaphysis, it is a very important one.

Dr. Reichmann said that Rumpel, in his monograph on the *x*-ray, made the statement, in accordance with the theory of Ribbert that the majority of bone cysts were softened enchondromas. That was not my impression from reading the article and Rumpel believes they were genuine bone cysts, and that sarcoma and chondroma were different things.

In regard to the point made by Dr. Ochsner, I dislike to differ with such an eminent diagnostician and a man of such enormous experience, yet I really believe this is a case of bone cyst, and I think the future will show the correctness of the original diagnosis. We have looked over the sections very carefully, and I will repeat again that in the original findings there was not a bit of solid tissue in the cavity itself; it was so thin that it looked as if you got inside the pleural cavity and had gotten hold of the fibrous membrane. I am going to take another *x*-ray in a few days.

As to the condition found at the time of operation, the surface of the cortex itself was perfectly smooth, which is characteristic for bone cyst, and hardly ever for sarcoma. Then, too, it was extremely thin and uniformly so. The moment we entered the cavity we found it was hollow. This confirmed my diagnosis of bone cyst, and upon chiselling away a portion of the wall a thin, gelatinous, syrupy fluid escaped, which was transparent. It did not look as though it was a portion of a softened tumor mass; then upon looking into it we found a membrane lined like this (illustrating on blackboard). Of course, there is a possibility that we are wrong in our diagnosis of this case and only the future can tell, but I shall certainly watch the case in the future with a great deal of interest with that point in view.

Memorial Meeting.

A regular meeting was held November 4, 1908, in honor of the late Dr. David J. Doherty, with the president, Dr. Alfred C. Cotton, in the Chair. The president stated that the object of the meeting had been made manifest in the *Bulletin*, and a number of members had been selected to make some remarks in regard to the history, the work and worth of Dr. Doherty, and as president he thought it was no place for him to enter upon any eulogistic remarks. Dr. William A. Evans moved that a committee of three on resolutions be appointed and directed to draw up resolutions expressing the sentiments of the society; that this committee be empowered to act, in order that it might not be necessary to bring the resolutions before the society for formal approval, and that the officers of the society be instructed to attach their names to the resolutions and copies of them forwarded to the family. This motion was seconded by several and carried. The president appointed on this committee Drs. William A. Evans, J. Holinger and Charles S. Bacon, with power to act.

The president asked Dr. Evans to speak on the relation of Dr. Doherty's work to the Chicago Medical Society.

Dr. Evans said: Mr. President, Ladies and Gentlemen.—Last Wednesday night, when a number of us had gathered at the hospital for the purpose of accompanying the remains of Dr. Doherty to the train, there was some discussion as to what was the best way in which the society could give expression to its sentiment relative to Dr. Doherty. It was agreed at that time that an evening should be set aside, and that some of those who had been most intimately associated with Dr. Doherty should appear before the society at that time and have something to say relative to his life and his labors. It was decided that I should speak on his relation to the Chicago Medical Society and the work he had done for it, and just how productive that work had been.

There were those who had been more intimately in contact with him in his daily life and in his professional labors, and it was decided that they could speak more from that standpoint than could I. It was my function to tell you, and perhaps through you to tell others, of the things that he had done for this society and for the organization of medical men in general in this community.

I do not remember exactly when I first came in contact with Dr. Doherty. I do remember an acquaintance that was quite general, that had in it no special features, but which was somewhat quickened by his annual report about eight years ago, when he served as the necrologist of the society, and I remember a capacity for rhetorical expression that was altogether unexpected that was developed on that occasion, and this is practically the only office that was held by this man who had given to the society more of effort, more of labor, more of thought than any other member that this society has had, certainly in recent years. I did not often see much of him until we were in the throes of reorganization of the society, and I remember then his attitude was one of hostility, and I believe that he was largely responsible for the perpetuation of a system that has not, I believe, worked to the best interests of the society, and has not given to the society the best that it should have attained under that reorganization system. I remember how the meetings were blocked for four weeks by the opposition to the system of reorganization, which opposition was led by Dr. Doherty. Those of us who were fighting to bring about this change were naturally disturbed by the opposition that was being developed, and we were disposed to view with a great deal of charity the efforts of some of those men whom we regarded as obstructionists. In all the various conferences held at this time there were from time to time some reflections cast on the motives of this man, that man and the other man, but in none of these conferences did I ever hear a man say that Doherty's motives were any but the best. Through it all he preserved to a wonderful degree the confidence and esteem of the men whom he was opposing and who were opposing him in that issue, and then after the reorganization of the society had been accomplished, and after the society had launched upon a policy of procedure representing activities along lines that

were entirely new, and that were generally untried, there were men to whom this society could always look for leadership. There were even men who had been active in bringing about the changes that were then accomplished who did not lend an effort needed to make these things succeed, for I believe you who have done things in this world readily understand that even the best of movements can not be left alone, and even after a thing has been accomplished, even after a thing has been set in operation, there is still necessity, aside from the actual advantages and the actual merits, for support, and this man who had fought so many of these things because he did not conscientiously believe they were the best things, lent to those things a support that in activity, that in sincerity of service, and in effectiveness of service, was not equaled by a single member of this society, and if Dr. Doherty in the beginning was opposed to the branch societies, when the branch societies had been inaugurated there was not a man who in all the ranks of our profession more thoroughly put aside the causes that had gone before and did more active work for the success of the things undertaken than did he. There were times when those responsible for the policies then entered upon felt the need of counsel and of aid and of support, and when they felt that they needed some one to lean upon, Doherty was always there to lean upon. There was work to do, ladies and gentlemen; perhaps there was more work to do than many of you have any comprehension of, and there was no worker who in any way equaled or approximated in efficiency the active aid and cooperation that was given by this man, and that man who had done so much for this profession, who had lent so much when aid was needed, never received any of the honors that usually are given to men and usually are expected by men who do labor of this kind. Somehow or other, we all had the idea that some day or other the honors of the society would be given to Dr. Doherty, and yet the man was so unselfish, was so unseeking, that the day was allowed to pass and still other days were allowed to go by without an official recognition of his services.

One of the best things we have ever done. I believe, was when he was ready to leave us for the first time to go to the Philippines we gathered together a considerable group of men and entertained him at a banquet, at which banquet there were speeches made that would delight the heart of any man, I am sure, as I know they delighted the heart of Dr. Doherty on that occasion, and then we gave him a little book in which we voiced an expression of the regard we held for him, and the pleasure is infinite that has come to me by the fact that this was done, not after he had gone, but while he was still among us, whilst the good of it could be fully appreciated, valued and understood by him.

He has done much for the medical profession and for the Chicago Medical Society in the labor that he has given it, but I believe that over and above and beyond this he has done better things in the spirit that he has instilled into our organization and into various members thereof. It is difficult at times for those of us who are disposed to be partisans to give credit to the motives of the man who opposes us, and this I believe was especially the function of this great, broad, good man who has died. If you will allow me for a moment to be personal, I will say that I was disposed to be vindictive or to be angry at those whom I believed were not acting fairly, and on all those occasions it was Doherty who gave to me a broader view, who gave to me the light to see that the opposition of these men was honest, even though I still believe that it was misguided. No man has ever come into my life who made me see the better side of men and the better motives of men as did he, and I believe in the life of this society that no man has ever come who instilled more of charity, more of justice and more of tolerance amongst our members than did David Doherty.

He had one special hope for the society, and that was a permanent home, and his earlier activities, as I remember them, were as a member of the Committee on Permanent Housing, and I recall that the two most prominent members of that committee have passed away—Dr. Senn and Dr. Doherty—and it was his dream that the Chicago Medical Society, a wanderer always, might have a

permanent home, and to this end he constituted himself the watchdog of the funds of the organization, and he fought to retain in the treasury every dollar that could be there retained, and he fought every unnecessary expenditure as he saw it to the end that there might be an accumulation for this purpose, and when an arrangement had been perfected, with the Crerar Library, by which the society eventually was to find a permanent home, and it did not seem necessary that this ten thousand dollar fund should be further saved for the purpose, he was still loth to surrender his guardianship of it, and I remember the last time I saw him was just before he went to the Philippines, and as he was leaving he said: "Gentlemen, it does not seem necessary, as we see it, to guard this fund further, but we can not tell what may happen, and my parting request to you is that you keep this fund intact until I come back from the Philippines." And I may say the fund not only was kept intact until he returned, but it still remains in the society's treasury and has been still further added to.

I did not see him in his last illness until a few days before his death. I did not know he was ill until Thursday, and he, I believe, died on Monday, and then after having learned he was ill I went out to the hospital to see him. We spent a little time in his room and then left him.

The idea that remains with me is this: I have no doubt but that he felt I had neglected him, and I have no doubt that deep down in his heart he felt that every member of this profession for whom he had done so much had neglected him, and yet the first thing that occurred to his mind was an excuse for my neglect of him, and during a conversation of perhaps three-quarters of an hour he was constantly endeavoring to find the best point of view for everything that was presented to him, the best possible and most charitable way of looking at my absence from his bedside, and the most charitable way of looking at everything that appeared to be other than charitable. And so as I left that room the thought in my mind was that if in a human act there was the faintest possibility of good, Doherty's turn of mind would discover that good; that if in a human character there was a trace of that which was noble, Doherty's mind instinctively would find that trace. And this is the thought living with me in the flesh, and I trust will always live with me, and this is the thought, I believe, this man in dying would have you carry home with you and do more for you than he has ever been able to do with all his energies in the flesh, and that is, there is good in every man; that if every man took a certain viewpoint society would be better, our profession would be ennobled, and if we as an organization would see to it that the threads of organization work extend throughout the lives of each of us as individuals, then Doherty will not have lived in vain.

Dr. J. Holinger's remarks:—In Dr. Doherty every one of us has lost a powerful, magnanimous and kind friend, who would never hesitate to go far out of his way in order to do any one a good turn. Nobody could associate with him without feeling the lasting good influence that the intercourse with him produced. And all this came about so naturally, so, as a matter of course, that many did not even become conscious of it. He was not a missionary, he did not do any preaching, he was simply a good example. How he, who was fifteen years older than I, happened to single me out for his especial friendship I do not know, but the beginning of our acquaintance dates back sixteen years, after I had been in this country but a few months. He liked to make me talk about my impressions of this country and its people, especially its many nationalities. Not having had much experience here of my own, I talked more from hearsay, and, since the men whom I quoted at that time were not all of the highest walks in life, my ideas were rather one-sided and prejudiced. In the most natural way he led me to talk about the Irish, and, not recognizing his nationality, I made some remarks which were not exactly flattering. Suddenly he burst out in joyous, mischievous laughter and exclaimed, "Oh, Lordie, my father and mother were Irish, and I am Irish, too." That is an example of his way of curing a friend of prejudice. I certainly learned my lesson from this good-natured joke of the doctor.

He was the type of the true American citizen; nor did he limit this term to the descendants of any one nationality. For him the definition of an American citizen was a man who did his duty toward his country and fellow-citizens, be he of English, Irish, French, German or any other descent. His sense of duty was keen to the utmost; in fact, it would be difficult to say which was more strongly developed in him—his sense of duty or his desire to aid those who needed his help. An example of this was his three trips to the Philippine Islands. He felt that the Filipinos were a nation of children who could be understood and helped only by some one to whom they could talk freely in their own language. Regardless of time, money and pains, therefore, he decided to study their dialects, which, indeed, was not without difficulty for a man in his years, as he had to learn it from Spanish, which also he had to study first. But he mastered the task. The result was that the people of those islands in whom he took an almost fatherly interest, as he did in all the oppressed, responded by showing him the utmost confidence. And when he deemed them ripe for such reforms as training schools for nurses, free dispensaries, modern dairies, etc., the rich replied by pouring money into the funds, the less wealthy by contributing actual work, and the great masses by accepting and following his advice.

Always cheerful, always helpful, constantly inviting one to confide in him, yet never soliciting one's confidence, it was a pleasure and a privilege to receive him in one's home. He loved simple family life and the atmosphere of a happy home. He anxiously sought every opportunity to show his appreciation for favors shown him, no matter at how remote a period.

If I try to compare him to any man now living, or any personage of history, there is only one man's name that presents itself to my mind. It is that of Abraham Lincoln. He is the man whom Doherty resembled in his broad-mindedness, his self-sacrificing nature, the love for his country, his optimism, his fondness for a good joke, his kindness of heart. I can not help but see in Dr. Doherty's character a reflection of the qualities which helped to make the greatness of our beloved President.

Dr. Henry Bangs: Mr. President. Members of the Society:—I have known Dr. Doherty ever since he came to Chicago, some twenty years ago. Being neighbors over on the North Side, we often met professionally and socially, especially during the last fifteen years. The Doctor was a delightful, inspiring companion. He had much to give and gave it in an unassuming, natural way. How did he come to possess those precious treasures that were stored up in his mind? They came to him from three chief sources, being marked as three distinct periods of his mental evolution.

In the first period, in St. Louis, the Doctor acquired a good college education, especially in the so-called humaniora, as the classics, rhetoric, history and the like, and then went to Rome to pursue his studies on the same lines at the American College for two more years. As he was then in his most receptive years, Italy with its striking contrasts between the past and the present, its many suggestions and inspirations, made a deep and lasting impression upon him, and when he returned to America he had absorbed and assimilated the best the ancients have left us as the foundation of our own modern civilization.

During the second period the Doctor officiated as a priest in several parishes in St. Louis and in the wildernesses of southwestern Missouri. Having plenty of leisure, he read a good deal, books he had not read before, such as the works of Franklin, Jefferson, Thomas Paine, Locks, Bacon, Hume, Gibbons, Shakespeare.

Slowly a wonderful change took place in him. He experienced something like a renaissance. He became imbued with modern ideas and felt that there was no longer any place in the church for him.

The third period began the day he handed in his resignation to his archbishop and left the church. He then found himself in the street, penniless, apparently friendless, not knowing where to go, but perfectly at ease with his conscience and determined to fight his way through life. For some time he did

newspaper work as a proofreader and reporter. Later, aided by some friends, he began studying medicine. After his graduation he spent a year abroad, at the University of Freiburg, Germany, and on his return began practicing in Chicago, and how well he succeeded here we all know.

From such sources, then, came the material which went into the final mold of the charming, well-balanced personality of our dear Doctor, and we understand readily why everything in him was so "echt" (his favorite expression), so true, so genuine: his optimism, his sympathy, his hatred of all oppression, his passion for freedom, liberty and fair dealing, above all his tolerance, this rare virtue which was the real key to his character. With Marcus Aurelius he believed that the evildoer is such because of his ignorance. "Therefore, be patient with him and try to convince him of his error."

"Integer vite scelerisque purus" he went through life! To have met him, associated with him, to have been his friend, I consider as a lucky accident of my life.

Dr. Charles S. Bacon:—Mr. President, Ladies and Gentlemen:—I was not asked to consider Dr. Doherty in any special relations, and assume that I am to give my general impressions of him and his work. I am very glad of the opportunity of expressing my great appreciation of his character.

I have tried to think of some way of describing our departed colleague and friend, and I believe I can not do better in a few words than to say that he was a good physician, a good citizen and a good man. In saying this I believe I am saying that he was the ideal physician, citizen and man. A person may be a good physician and not a good citizen. He may give such exclusive attention to the work of his profession that he loses or fails to develop interest in the community, in society, and comes to have no sympathy with movements or objects outside of those of his profession. Such a man is not an ideal physician. One may be a good citizen and a poor physician, and that is frequently true of the physician who has very broad interests outside of his work. One may even be a good physician and not a good man. But when we can say of any man that he is a good physician and at the same time a good citizen and a good man we are also saying that he is the ideal physician, citizen and man.

I have not had the opportunity of knowing Dr. Doherty as a physician as well as his chief with whom he was associated for so many years—Dr. Banga—and many others who have been much more intimate with him. I have known him and his work in the Chicago Polyclinic School fairly well and his work in private practice to a certain extent, living in the same neighborhood with him, and I know how he was regarded by all those who were able to judge of his work. As a physician he had the knowledge and skill that was necessary; he had the best of judgment, and in addition to these qualifications he also brought support, sympathy and encouragement to his patients, things that sometimes were worth many times more than knowledge and skill. It was inconceivable that anything approaching neglect should happen in his treatment of a case. Absolute fidelity to his patient and the equal treatment of every one, whether it was the poorest dispensary patient or the wife of a rich man, characterized his practice. So as a physician in his private practice he was regarded. As a teacher in the school he had clear ideas, which he was able to express well and emphatically, and so made his influence felt on the students who all regarded him highly. In short, I can say in regard to his professional work what I believe all of us feel, that to claim him a colleague was an honor. He was a man we would be glad to trust in any case that he would take.

In his relation to the community, in his function as a citizen, I would place his work as a member of the profession, his work for the profession, his work in the medical society, because I believe he regarded very highly the influence of the profession on the community, and in order that that influence might be effective he wanted to see the right conditions prevail among the members of the profession, and, therefore, he worked for the profession in order that the right relations could exist among its members, and that all misunderstandings should cease. And so he worked for the better organization of the profession.

In the work of the society his criticisms were always free, as were also his suggestions, and were always of value, whether they were accepted or not, they always brought out the right discussion, which helped to clear up the subject. His work in the society has been referred to, also his work as a trustee has been mentioned. We felt, when he was a trustee, that the interests of the society were guarded, and we felt safe to have him a trustee. Any of you who have never had the privilege of hearing one of his annual reports as chairman of the board of trustees can not fully appreciate the man and his work. We all felt it was worth a visit to the meeting alone to hear the report he gave us: humorous, full of suggestions and fatherly advice, all that he said was appreciated and remembered. Especially as a part of his work in the society would I mention the public lectures in which he took great interest, and which he was one of the first to organize and to develop. When he left we felt his absence from this committee very much. Here he saw an opportunity for the profession to make its influence felt in the community.

Outside of the profession Dr. Doherty was a good citizen. He was interested in the progress of the city in which he lived, as well as the state and nation, but he conformed to a rare test of good citizenship when he took up the work in the Philippines. I regard that as one of the most unique examples of good citizenship. As the Philippines are so far away, its people are easily neglected. We know little about them. Their wrongs might go unrighted for years and ages. Just because wrongs may and do exist there and the people need help, so much is the greater need of some one with the highest type of citizenship to help them out. And that was the opportunity for Doherty. The work he undertook was not popular; it could easily degenerate into a disappointment, into a farce. The best of judgment—judgment based on large experience, on much study and thought, controlled by the best common sense—was necessary to do this work successfully. But the difficulties did not interfere with his prosecution of the work. He took it up and carried it on with such success that it met with the highest appreciation of the then Governor Taft, and of others, who were at first inclined to be critical of his work. He took up this work, also, knowing the cost in money and time, in professional opportunity, and in health. I understand he paid the cost, because his sickness and death were largely due to exposure in the islands. So, it seems to me, we can point to his work as an example of the highest quality of citizenship.

When we speak thus of him as a physician and as a citizen we are speaking of him also as a man. Is there anything more that we can add? Others have brought out some of the traits of his character. I can hardly think of qualities that are desirable and lovable that can not be attributed to Doherty. It is impossible to think of anything that is disagreeable, that is low, in connection with him. He was just and generous always. He was always friendly and sympathetic. Those are among the first things we think of; at the same time he was most fearless and courageous when necessary. All that makes a man lovable was in Doherty. And so when we say that this man was a good physician, a good citizen and a good man we also agree that he was our ideal.

Dr. Liston H. Montgomery: Mr. President, Ladies and Gentlemen:—When the death of Dr. David J. Doherty was announced one week ago, we were grieved at the loss this society and the community at large had sustained. We have met this evening to do fealty and pay homage to his memory, he who was our colleague and friend during life. Those of us who had the good fortune and privilege to work and serve with him for the welfare and interests of our society, of which he was a devoted member, or along paths in other directions, learned to respect and honor him, not alone for his sincerity as a man, but to esteem him for his admirable qualities as a fluent speaker while discussing business affairs or professional scientific topics; for his congeniality, alertness of thought and as a versatile genius and debater; for his suavity of manner and gentleness, which had the stamp of genuine sincerity and truthfulness, whether he agreed with others or entertained opposing views. Few are they, if indeed any at all, who ever have the temerity of speaking disparagingly of a professional brother at any

time during life. We rejoice to say there is not one, so far as we know or recall, who received a word of censure from him, as exemplified in the life and character of our deceased comrade.

He served this society in various capacities faithfully and well, and it is our belief that he was the most efficient and painstaking neurologist in the history of the society. Upon him devolved the task, while occupying this official position, to speak of the good deeds of a deceased *frater* without fulsome eulogy.

I may be pardoned for referring to two personal incidents which are recalled by the speaker that transpired within the present year of our beloved departed friend. Elsewhere in another association it was my privilege some months ago to decline nomination for a delicate honor in his favor, which was subsequently bestowed upon him by his being chosen and elected, and I was first to extend to him cordial and hearty congratulations.

A few days before he was stricken I met our genial friend. His countenance was wreathed in smiles. Addressing me familiarly, among other remarks, he stated his desirability of my continued loyal support, which I promised him I would give. But now, profoundly as we all regret, that inevitable Divine fate overcame this gallant man, who yet was in the prime of manhood and usefulness. While I can not fulfill that which was promised to him but yesterday, it seems, I submit the foregoing tribute to his memory instead, with the satisfaction of believing, as other speakers who have preceded me this evening, that the world and noble profession which he adorned is better for his having lived, and that he has merited and achieved a just reward in entering upon an eternal life. And shall I add, ladies and gentlemen, awaiting those who may follow him?

Dr. Lyman Ware cited an illustration of how Dr. Doherty thought a man should be properly prepared for the duties that devolved upon him in life, so that when the opportunity came he might take advantage of it. What constitutes a doctor's success in life? A big bank account, honor and fame? Not in Dr. Doherty's opinion. His idea was to do good and to be of service to everybody. That was his opinion of success in life.

Dr. A. Belcham Keyes related how he met Dr. Doherty on a street car about two weeks before his death, at which time he made a remark which was very typical of him, namely: "I am suffering from Bright's disease, but, thank God, no one can catch it from me." While Dr. Doherty opposed the reorganization of the society and the establishment of branches for what at one time he considered good reasons, yet when they were in good working condition and doing great good, Dr. Doherty did all he possibly could by his influence and example to make them successful.

Dr. A. W. Williams:—Mr. President: Some years ago we had a terrible strike in Chicago, and as an exemplification of the character and broad sympathy of Dr. Doherty I wish to state that there were at that time a few negroes arrested and, as Dr. Doherty thought (and so did a great many other citizens think), unjustly treated.

The lamented Doctor wrote me a letter, suggesting that we call a meeting and take some steps to protect the innocent negroes. This act of his convinced me that his sympathies were broad enough to cover all classes and conditions of humanity. I had several subsequent communications with him relative to methods tending to the uplift of the unfortunate and it was always to me a great source of satisfaction to hear from him.

I mention this, Mr. Chairman, in substantiating what has been said by Dr. Bacon, that Dr. Doherty was a good physician, a good citizen and a good man, and to show that he was a man whose sympathies were broad and whose heart went out for the unjustly and unfairly treated, not negroes particularly, but humanity in general. I do not stand here to defend negroes because they are negroes; but, like Dr. Doherty, I think a man ought to be broad enough, large enough, if an Irishman or a Frenchman or any species of the human family were being unfairly treated or was in a ditch, to go down into that ditch and help him out of it.

That was the characteristic I found in Dr. Doherty, and in my esteem and admiration for Dr. Doherty I yield to no man. No one feels the loss of this good man more than myself.

Dr. Robert H. Porter stated that the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics was going to hold its meeting at Indianapolis, Ind., November 10 and 11, and extended an invitation to the members of the society to attend that meeting, if possible.

Dr. Porter also moved that the Chicago Medical Society invite the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics to hold its next annual meeting in 1909 in Chicago. This motion was seconded by several and carried. Adjourned.

ENGLEWOOD BRANCH.

The Englewood Branch of the Chicago Medical Society met at the Englewood Hospital, Sixtieth and Green streets, Tuesday evening, November 3, 1908. Cases were presented by Drs. Miller, Bohart, Hill, McHugh and Beck. Drs. Bohart and Miller presented a very unusual and interesting case of sinus formation which had encircled the body once and a third times, following operation for appendicitis. The sinus starting from the operation wound and steadily progressing in spite of treatment. Case presented for diagnosis. Opinions differed and further study and examination suggested. The case will be gone over carefully and report made at the next meeting of the society. Dr. J. P. Webster read a paper on The Diagnosis and Treatment of Bone Lesions (Exclusive of Fractures). Dr. Max Reichmann gave a talk on the Value of the Roentgenogram in the Diagnosis of Bone Lesions, illustrated by shadow-box and plates. Dr. W. H. Hobart read a paper describing some original work with the magnesium sulphate solution as a surgical dressing. Dr. Emil G. Beck then opened the discussion. In the course of his remarks he referred to his work with the bismuth paste treatment. He also presented a number of patients treated by this method with most gratifying success. One case shown by Dr. T. R. McHugh which had been treated early before the possibility of poisoning by the bismuth had been realized excited great interest. Patient had had a cold abscess which was opened and the paste injected, but without any provision against possible intoxication. Abscess cavity closed promptly in a few days but later developed a generalized eruption that resembled measles. This was followed by an ulcer in the mouth, which soon healed however. Dr. Beck called attention to the technic by which he was able to reduce the danger of similar accidents to the minimum.

The discussion was then continued by Drs. Hultgen, Woods, Clement, Jacobs and McHugh.

The returns from the election were then read, after which the society was served with a lunch.

The following resolutions were adopted in regard to the disposition of the surplus of the entertainment fund for the A. M. A. meeting. It was

Resolved, That it is the sense of the Englewood Branch that the surplus of the entertainment fund for the A. M. A. meeting should be left to the discretion of the Council of the Chicago Medical Society; and further that it be

Resolved, That this Branch recommends that the Council of the Chicago Medical Society give this fund intact to the Endowment Fund of the Chicago Medical Society.

A vote of thanks was extended to the essayists of the evening and to the visitors who took part in the discussion. The program for the next meeting, Tuesday evening, December 1, was read, and was as follows: "Plastic Gynecology," a stereopticon lecture by Dr. E. C. Dudley.

The society then adjourned. Attendance, 58.

C. HUBART LOVEWELL, Secretary.

SOUTH SIDE BRANCH.

The South Side Branch of the Chicago Medical Society has demonstrated its strength as a medical organization, at the meeting held in the dining room of

the Lexington Hotel, Friday, September 18. The announcements of this meeting were distributed in printed form to all of the members and many physicians out-side of this branch. It was a fulfilled desire of the officers of the branch to make this meeting a Goodfellowship Rally and one in which to create a renewed interest in the regular scientific program of the meetings. About 250 members were present, which is more than half of the total membership of the branch. Following a general introduction and talk-fest the members were seated in groups of eight at small tables and over light refreshments and beverages were entertained with vaudeville stunts interspersed with extemporaneous talks by various branch orators. After a most happy introductory speech by the president, outlining the proposed year's work, he called on the following: Drs. Wm. Cuthbertson, M. Z. Albro, Frank Billings, A. C. Cotton, A. M. Corwin, H. N. Moyer, J. W. Pettit, of Ottawa, and Dr. Hurty, of Indianapolis. Dr. Cotton made the principal speech of the evening, and made a strong plea for harmony and fellowship in the medical profession, and for progressive scientific work, etc. He also congratulated the Southern District Branch upon the magnificent meeting and the large attendance. Drs. Billings, Hurty, Secretary Indiana State Board, and Pettit spoke enthusiastically about the splendid influence of such meetings as these upon everything that pertained to medicine and doctors. They all seem to think that in such meetings lay unusual forces for good, conscientious and scientific advancement. Dr. Billings stated that as little as five years ago a meeting of this kind would have been impossible.

This year the meetings will be held in Drexel Hall, corner of Cottage Grove avenue and Fortieth street, an ideal hall for such meetings and which is accessible for all the members.

Meeting, October 29, 1908.

The October meeting of the South Side Branch of the Chicago Medical Society was held at Drexel Hall, Fortieth street and Cottage Grove avenue, Thursday, October 29. The following program was given: The Spirochæta Pallida as the Etiologic Factor in Syphilis, Difficulty in Differentiating from Other Bacteria in the Mouth, by Robert F. Zeit; The Relation of the Discovery of the Spirochæta to the Spread of the Disease, Gottfried Koehler, who responded for Dr. W. A. Evans; Some Common Errors in the Diagnosis of Syphilis, by Joseph Zeisler; Some Important Points in the Surgery of Syphilis, G. Frank Lydston; and The Influence of the Discovery of the Spirochæta upon the Treatment of Syphilis. There were demonstrations of the living organism and a résumé of the various accepted methods of treatment with special reference to hypodermatic method. Dr. Corbus also spoke on the Spirochæta and Dr. Harris's demonstrations were very much appreciated. From an average attendance of 40 this first meeting had 215 members present and between 20 to 30 turned away for lack of further accommodations. It was a magnificent success in every sense of the word. The following are the officers and committees for the ensuing year: President, Edwin B. Tuteur; secretary, F. Gurney Stubbs; councilors, Chas. E. Paddock, Allen B. Kanavel, Jas. E. Stubbs, Wm. Fuller and Joseph L. Miller; alternate councilors, Wm. Cuthbertson, Frank G. Lydston, Thos. C. Allen, Harrison L. Mettler, Denslow Lewis; member organization committee Chicago Medical Society, Wm. Cuthbertson; members of organization committee Southern District Medical Society, 22 Divisions, chairman W. A. Evans, D. R. MacMartin, H. D. Peterson, Wm. B. Whitaker, Robt. J. Gay, Chas. J. Drueck, Harold Moyer, Milton M. Portis, Hugh Cuthbertson, J. E. Kelly, W. R. Cubbins, Frank W. Van Kirk, Adolph Gehrman, Herman D. Almes, John A. Dinwoody, E. V. McDonald, Wm. C. Van Benschoten, Chas. Hill, Leslie W. Schwab, Shipley Wayland, Chas. M. Oughton and Clifford G. Grullee.

ABSTRACT OF PAPER ON THE SURGERY OF SYPHILIS.

G. FRANK LYDSTON, M.D.

CHICAGO.

The uncomplicated chanere never demands surgical treatment save occasionally for cosmetic or domestic reasons. Coneaeled sores, especially of the mixed variety, often demand the knife. A dorsal incision is sometimes safer than expectancy. Syphilitic lymphitis and bubo require the knife only when complicated by pus, chaneroidic or tubercular infection. Plagedena, either of bubo or chanere, may require the cautery. In secondary syphilis surgery is rarely required. Obstinate ulcers or mucous patches may require light curettement or cauterization. Indurating edema may demand the knife. Indurating edema consists of connective tissue hyperplasia perhaps with distinct tumor formation. Such growths have been mistaken for malignant disease. These growths most often occur in tertiary syphilis. They are prone to destructive ulceration. Chronic chaneroid in syphilitics is especially likely to undergo indurating edema and extensive tissue necrosis or ulceration. Gummata of the brain, if accurately localized and accessible, should be operated if therapy does not act quickly. Their prolonged existence endangers the brain tissue.

Gumma in any accessible situation demands the knife if mercury and the iodids are ineffective.

Severe bone diseases—periostitis, caries or necrosis—should be operated, the indications being the same as in non-syphilitic subjects. Syphilis of joints demands the ordinary surgical measures as well as specific medication. Chronic syphilitic ulcers, especially of the leg, are often obstinate to treatment, but are speedily cured by excision or curettement of the indurated base. Patients are often overdosed with mercury and the iodids in lesions which yield readily to the moderate use of specifics in combination with radical surgical measures. It is irrational to continue medication without the knife in some cases. A neglected syphilitic iritis may finally call for iridectomy.

Syphilis of the tongue often results in malignant disease. An early diagnosis and removal of all or part of the tongue is often indicated long before a positive diagnosis with the microscope is possible. All stubborn syphilitic tongue lesions should be regarded as possible source of cancer. Excision of sclerotic plaques and nodules of the tongue in syphilis often saves life. Leucoplakia buccalis or lingualis from syphilis may lead to malignant disease, hence should be carefully watched and at the first indication of infiltration or ulceration should be excised or thoroughly cauterized with the actual cautery.

PUBLIC HEALTH MEASURES FOR THE PREVENTION OF SYPHILIS.

(ABSTRACT.)

GOTTFRIED KOELLER, M.D.

CHICAGO.

The discovery of the spirochæte by Schaudinn and the demonstration of this organism in syphilitic lesions of all varieties by many investigators serve a two-fold purpose in the control of the spread of syphilis. Firstly this discovery opens up a field of possibilities in the realm of scientific diagnosis and treatment of this disease. Secondly, it establishes firmly the position of syphilis among the class of infectious diseases as recognized to-day by public health officials and legislators.

The prevention of syphilis is thus the prevention of infectious disease, and much is done and accomplished along the lines of the latter. In Europe, especially in the larger European cities, special methods for the prevention of syphilis have been instituted and to a certain extent carried out. I say carried out, I mean the methods and not the prevention of syphilis. How successful the latter has been I leave to the decision of those who have seen syphilis abroad and in the United States.

One of the newer special methods requires brief mention. It is claimed that syphilis has been diminished in the German Army since the soldiers have been taught the use of calomel ointment before intercourse on the parts to be exposed. In America, as in Europe, the general principles underlying the prevention of infectious diseases are well recognized and carried out quite thoroughly, especially in the larger cities, but unfortunately syphilis is rarely classed by health authorities among this class of diseases.

A brief résumé of the principles embodied in our means and methods for the prevention of infectious diseases may be set forth as follows:

1. Early and accurate diagnosis by physicians.
2. Prompt and universal notification of the health authorities.
3. Efficient and comprehensive quarantine often best accomplished by placing the patient in an isolation hospital.
4. Immunization of susceptible individuals that have been exposed.
5. Disinfection and termination of quarantine when non-infectiousness of the affected individual has been established.
6. Educational propaganda.

To what extent have these measures been applied to syphilis? By legislative enactment, at times only in a general way, e. g., measures applying to infectious diseases do necessarily apply also to syphilis. By administrative power less frequently, although Detroit now requires that houses of prostitution harboring a person or persons affected by venereal disease be properly placarded by health authorities. The effects of such regulation can readily be imagined. The dispensary ordinance recently passed by the Chicago Council requires that dispensaries submit weekly to the Commissioner of Health a list giving the name and address of all cases of syphilis and gonorrhoea treated, and such other information as may be required by the department.

Before proceeding further along these lines and considering syphilis as a reportable and preventable disease on the part of public health officials, let us inquire what is the relative socio-economic importance of this disease to the community as compared with smallpox, typhoid, tuberculosis and others actually dealt with by health officials.

Infection with syphilis is commonly acquired during the sexual act and usually during promiscuous and illegal intercourse. Such intercourse is interdicted by the moral and legal codes, while the exposure to other infection, for example, smallpox and tuberculosis, is not thus enjoined. This moral and legal prohibition does not cover the acquisition of syphilis during marital intercourse, as sanctioned by law.

Here protection of the innocent becomes a duty of the body politic. But where, in turn, is the physician who, when asked, can conscientiously give a certificate of good health to those about to apply for a marriage license without impeding the laws of nature unnecessarily, if they can be impeded at all. Hence the regulation and control of prostitution seems nevertheless to be included in the general program thus outlined for the prevention of syphilis, i. e., syphilis defined merely as an infectious disease.

This important subject should not be left untouched by the educational propaganda, which is such an effective part in all measures for the prevention of infectious diseases. Its effect in the battle against tuberculosis is too well appreciated to require further exemplification.

In this educational work the family physician plays and will continue to play the most important rôle. Dr. Samuel Treat Armstrong, in his article on "Syphilis in Relation to Public Health," says: "Each physician must fill the rôle of a public health officer in his private practice, and by carefully worded advice urge those infected to abstain from spreading the disease, urge them to pursue a systematic course of treatment, use all his authority to prevent marriage for some years after acquiring the initial lesion."

The function of the public health officer in this connection is also important and far reaching. General prophylactic measures for the prevention of extra-

genital infection are even now included in the general sanitary regulations enforced by the bureaus of food, factory and restaurant inspection. Unfortunately, very little is said in regard to the dangers and gravity of genital infection, and very rarely or practically never are bulletins or pamphlets issued on this subject to the general public.

I believe that individual prophylactic measures should be taught and enforced. Notices should be displayed to the visitors of houses of prostitution urging them to use antisiphilitic local applications before resorting to illegitimate intercourse. The inmates of these houses should be taught to detect lesions on the male organs and also how to prevent infection, by continuous use of mercurial douches or ointment or whatever the discovery of the spirochæte may lead us to employ and recommend as an immunizing agent against syphilis. These houses should be placarded when an affected inmate is found. This would stimulate the management of these houses to send their inmates to physicians and then to hospitals for proper treatment in order to prevent the placing of the placard on the door.

Public hospitals should be provided to properly care for those affected with venereal diseases. Charitable and religious hospitals should be urged to open their doors to those affected with gonorrhœa and syphilis.

SOME COMMON ERRORS IN THE DIAGNOSIS OF SYPHILIS.

(ABSTRACT.)

JOSEPH ZEISLER, M.D.
CHICAGO.

The speaker pointed out a frequent source of errors in the fact that syphilis is one of the great imitators of other diseases of the skin. He referred particularly to errors during the primary stage of the disease and mentioned several cases of infection in professional men where the primary lesion had been misinterpreted and the accompanying enlargement of the lymph glands subjected to extensive though unnecessary surgical operations. He, on the other side, called attention to the fact that lesions of any kind occurring upon the genitals are often misinterpreted as the first evidence of syphilis, and cited instances of herpes, of scabies and of lichen planus which had thus been wrongly diagnosed. He further mentioned the differential diagnosis and incident errors as regards lupus and finally referred to the striking resemblance in many cases of blastomycosis to syphilis.

LAKE COUNTY.

The Lake County Medical Society held its semi-annual meeting at Parish House, Waukegan, Oct. 29, at 8:45 p. m., President J. C. Foley presiding. A letter from Dr. J. W. Pettit was read. Dr. Pettit is expected to attend the next meeting. The society voted unanimously to support the efforts of the American Medical Association in securing a national department of health. The following physicians were elected as new members: Albert R. Sheldon, Highland Park; J. A. Connell, North Chicago; F. M. Barker, Waukegan; S. V. Hageman, North Chicago; Carl A. Wicklund, Waukegan. The following resolutions were then unanimously adopted by the society:

WHEREAS, It has been the practice for a number of years for some of the newspapers published in Lake County to mention the names of physicians in relation to operations, births, injuries or other medical matter that has come to their knowledge; and

WHEREAS, It is against the ethics of the medical profession to have such notices published; be it therefore

Resolved, By the Lake County Medical Society at this regular semi-annual meeting held in the Parish House, in the city of Waukegan, this 29th day of October, A. D., 1908, that we hereby express our disapproval of such action on

the part of physicians belonging to this society, and that we respectfully request that the various papers published in Lake County refrain from publishing the name of any physician in connection with any of such notices; and be it further

Resolved, That a copy of this resolution be sent to each and every newspaper published in Lake County and to each and every member of said medical society.

The meeting then adjourned to the dining room, where they partook of an excellent banquet, with several invited guests. About 85 in all sat at the board. During the banquet Dr. J. C. Foley acted as toastmaster. The following toasts were responded to: Tuberculosis, Dr. W. A. Evans, Health Commissioner of Chicago; Preventive Medicine, by Dr. L. M. Bergen of Highland Park; Report of the Sixth International Congress on Tuberculosis, by Dr. W. H. Watterson, of Waukegan; Early Days of the Society, by Dr. L. H. Tombough, of Waukegan, at the close of which Dr. Tombough, in the name of the society, presented Dr. A. C. Haven of Lake Forst with a small token of esteem and appreciation of his work as secretary of the society for the past quarter of a century—with the exception of one year—when he held the presidency. Dr. Haven responded with some appropriate remarks. Rev. John Finn, of North Chicago, then spoke on the Relation of the Clergy to the Medical Profession, after which benediction was said by Rev. L. C. Burling. The event was the greatest in the history of the society, and much interest was aroused along the line of preventive medicine and the care of our tubercular.

LIVINGSTON COUNTY.

The sixteenth semi-annual meeting of Livingston County Medical Society was held at Dwight on November 5. About thirty of the society members were present, and a few visiting physicians from Streator, who materially assisted in the discussions and the program. The meeting was most profitable and enjoyable. B. F. Morgan read a very interesting paper on Eelampsia, which was discussed at great length. C. L. Hamilton read a paper on Delirium Tremens, which was fully discussed. H. C. Hill read a paper on Adenoids and showed a patient who was suffering from the disease and who showed all the characteristic symptoms. A. C. Durkee read a paper on Anomalies in the Practice of Medicine. He gave a very interesting account of the practice of medicine by the natives in South America, where he has been practicing for the past two or three years. The physicians of Dwight furnished the entertainment and introduced a new feature into the program by inviting all the ladies who were wives, daughters or sisters of physicians. Several ladies accepted the invitation and the ladies of Dwight entertained them during the medical sessions with an automobile party. The banquet furnished by the Dwight physicians in the evening was the most elaborate affair to which this society has ever been treated. The Illinois Hotel, where the banquet was served, has the reputation of being one of the best in the state, and on this occasion it surely upheld its splendid reputation. Dr. H. C. Barr was toastmaster of the evening, and the following responded to toasts: What Are We Here For? B. F. Elfrink; The Physician's Wife, C. O. Donaldson; The Physician's Wife's Husband, J. C. Barnheizer; Public Opinion, G. C. Lewis; The Physician of the Future, E. H. Fitzpatrick; To Those Who Didn't Get Here, John Ross. The toasts were happy, witty productions, and they proved to be a grand climax to a most successful meeting.

MARSHALL-PUTNAM COUNTY.

This comparatively new organization held its first semi-annual meeting at Varna, Oct. 13, 1908. There was present the largest number of the medical profession ever assembled at a county medical society meeting in either of the

counties indicated by its title. The literary and scientific exercises of the occasion consisted of a program of topics, which were all presented in full with a single exception, and were well received by the profession in attendance. The local profession cordially welcomed and entertained the physicians from other places, and after an entire day's session spent in the consideration of matters of interest and importance alike to the welfare of the profession, their patrons and the public, they adjourned to meet at Toluca, Ill., on the second Tuesday in May, 1909. Titles of the subjects considered were: The Importance of Medical Organization, by Dr. W. A. Simmons, of Magnolia; the Physicians of Putnam County from Its Organization, by Dr. O. F. Taylor, of Granville; Diagnosis and Treatment of Gastric and Duodenal Ulcer, by Dr. E. S. Murphy, of Dixon; Tuberculosis of the Peritoneum, by Dr. H. S. Millard, of Minonk; What Shall I Give the Patient? by Dr. J. A. Sween, of Henry; A Recent Visit to the Hospitals of England, by Dr. T. W. Curry, of Streator; and the Duties of a County Coroner by Dr. E. F. Peterson, of Varna. This last important question to both the profession and the public was supplemented by the society in the unanimous adoption of the following resolution:

Resolved, That it is the sense of the members of the Marshall-Putnam County Medical Society, a wholly non-partisan organization, deeply interested in the welfare of both the citizen and the public, that the duties of the office of county coroner can be more properly and most satisfactorily discharged by one who possesses, with others, the qualifications of an educated and competent physician.

THE FOX RIVER VALLEY MEDICAL ASSOCIATION.

The Fox River Valley Medical Association held its eighty-seventh semi-annual meeting at Hotel Arthur, in Aurora, November 10. Quite a number of changes were made in the constitution with a view to making the society broader and more effective. Drs. H. E. Kereh, of Dundee, A. H. L. Krueger of Carpentersville, J. S. Ricker and A. E. Diller, both of Aurora, were elected to membership. Dr. Robert B. Preble of Chicago delivered a lecture on Cardiac Incompetency, which was of great value to the listeners, and Dr. J. W. Pettit made an earnest and much-needed appeal for intelligent medical organization.

Memorial resolutions were adopted on the death of Dr. Ava Michener, a member of this association. The annual election of officers resulted in the selection of Dr. H. T. Hardy, of Kaneville, for president; Dr. E. H. Abbott, of Elgin, for vice-president; Dr. Charles Read of Geneva, member of the executive committee; Dr. F. C. Shurmeier of Elgin, member of the program committee; Dr. J. A. Rutledge, of Elgin, member of the board of censors; Dr. H. A. Brenneke, of Aurora, member of the Neurology Committee; Dr. J. W. MacDonald, of Aurora, delegate to the State Society, and Dr. George F. Allen, of Aurora, alternate. A committee consisting of Drs. Abbott and Burlingame, of Elgin, and Dr. Dreyer, of Aurora, were appointed to frame an invitation to the Illinois State Medical Society to hold its 1910 meeting in Aurora. Dr. Preble was given a unanimous vote of thanks and made an honorary member of the society. Dr. Pettit has been an honorary member for a number of years. There were 42 members present at the scientific session and 64 members and guests sat down to the banquet afterward, many of the doctors' wives gracing the board.

GEORGE F. ALLEN, *Secretary-Treasurer*.

VERMILION COUNTY.

The Vermilion County Medical Society met at St. Elizabeth Hospital at Danville, Ill., Nov. 9, 1908. The communication from Dr. McCormack referring to the effort to establish a national department of health presided over by a cabinet officer was placed in the hands of a committee to take the matter up with the

Hon. Jos. G. Cannon. Program: Hair lip case presented by G. L. Williamson. Paper on anesthetics by A. E. Dale which brought out a general and valuable discussion. At this point in the program recess was taken to partake of an elaborate lunch served by the Sisters of the hospital. Adjourned.

E. E. CLARK, Secretary.

WABASH COUNTY.

The regular meeting of the Wabash County Medical Society was held Oct. 27, 1908, at 3:30 p. m. at Dr. Maxwell's office, in Mt. Carmel. Meeting called to order by the vice-president, Dr. S. W. Schneck. Members present: Drs. C. E. Gilliatt and J. J. McIntosh, Allendale; Drs. S. W. Schneck, J. B. Maxwell, R. S. Manley and W. E. Mercer, of Mt. Carmel; visitor, Dr. G. A. McDonald, of Mt. Carmel. The following program was given: Acute Nephritis, Dr. J. J. McIntosh; Demonstration of the Use of Adhesive Plaster for the Immobilizing of Injured Joints, Dr. S. W. Schneck. Both of the above were interesting and instructive and created some favorable discussion.

The letter from Dr. J. N. McCormack in regard to the establishment of a National Department of Health was read; and on motion was approved by the society and the secretary instructed to correspond with congressmen and U. S. Senators and urge their support of same.

The president appointed Drs. Maxwell, Manley and McIntosh as a committee on nominations and the committee reported as follows. Dr. C. E. Gilliatt, president, Allendale; Drs. S. W. Schneck, vice-president, Mr. Carmel; Dr. W. E. Mercer, Secretary, Mt. Carmel; Dr. R. S. Manley, treasurer, Mt. Carmel; censor, Dr. R. J. McMurray, St. Francisville. On motion the report of the committee was adopted. Drs. Mercer, Maxwell and Schneck were appointed as a committee on arrangements for a special meeting, if Dr. J. W. Pettit, president of the State Medical Society, makes his proposed visit to the society. Adjourned.

ANNUAL CONFERENCE OF COUNTY SECRETARIES.

MINUTES OF THE SECOND ANNUAL CONFERENCE OF THE SECRETARIES OF THE COMPONENT COUNTY SOCIETIES OF THE STATE OF ILLINOIS, PEORIA, ILL., MAY 20, 1908.

The conference was called to order at 9 a. m. Wednesday, with the following secretaries present:

Rafferty, Crawford County; LaSag, Lee County; Hoffman, Morgan County; Ray, Fulton County; Ensign, Marshall-Putnam County; Bell, Nelson County; Clark, Stephenson County; Wells, Adams County; Bowles, Will County; Allen, McHenry-Kane County; Kilby, Tasewell County; Weir, Clark County; Hale, Union County; Roberts, LaSalle County; Newcomb, Champaign County; Blaine, Douglas County; Smith, Randolph County; Kenega, Kankakee County; Bohrabugh, Mason County; Lovewell, Chicago (Englewood); Smith, Jo Daviess County. Several more secretaries were in attendance, but did not register at this meeting.

The first paper read was that of Dr. Rafferty, "How to Make the Secretary's Work Easier." This brought out some very interesting discussions. Dr. Marion K. Bowles, of Joliet, read a paper, "How Does Postgraduate Study Help the County Society?" Dr. Blackburn, of Bowling Green, Ky., who is the director of the Postgraduate Study Course, was present and opened the discussion on this subject, and also explained the course and the advantages of adopting it. Dr. Blackburn gave a very interesting talk, and every one went away better informed as to the scope of this feature in society work.

The conference transacted the following business: Dr. Ensign offered the following resolution: "That the officers of this conference be a president, vice-president and secretary and treasurer." Resolution carried. The officers elected for the coming year: President, C. Hubart Lovewell, of Chicago; vice-president,

H. N. Rafferty, of Robinson; secretary and treasurer, D. G. Smith, of Elizabeth. Inasmuch as the state society now recognizes this conference and makes its officers one of its standing committees, it was moved that the bills of the expenses created by this conference be presented to the council for endorsement. It was also moved that the president appoint a committee to draw up rules of order to govern this conference and report at the next meeting.

A vote of thanks was given Dr. Blackburn for coming this distance and for the able help he gave us on the subject of postgraduate study.

Adjourned to meet next year when the state society meets.

C. HUBART LOVEWELL, President.

D. G. SMITH, Secretary.

THE COUNTY SECRETARY.

C. HUBART LOVEWELL, M.D., CHICAGO.

Dr. Oliver Wendell Holmes has said that there were three occasions in life when a human being has a right to consider himself as a center of interest to those about him—when he is christened, when he is married, and when he is buried. And, as he goes on to state in his farewell address to his medical students at Harvard: "There are other occasions less momentous in themselves, perhaps, in which a person may speak more of himself than under ordinary circumstances he would think it proper to do, when he may talk about himself and tell his own experience; in fact, indulge in a more or less egotistic monologue without fear or reproach." This may be one of those occasions, and if in what is to follow you perceive any symptoms of egotism I trust that you will overlook them in this, my first, offense before this dignified and honorable society.

The organization of which I am a member has had its share, we are proud to believe, in the organization of the medical profession in Cook County. We have had many lessons to learn and many disappointments to bear. These no doubt were the result of an undue elevation of ideal. We have always endeavored, however, to maintain an attitude of mind which would enable us to profit by the experience of the older societies. When I see among you many members of the Æsculapian Society of the Wabash Valley, Rock River Valley Medical Association, and of the Peoria Medical Society, all of which date back to the time of the Mexican War, I begin to realize how unnecessary it is for me to try to tell you anything about how to make a successful society.

Eight years' experience as secretary of the Englewood Medical Society, the last four of which as a component part of the Medical Society of Cook County, has demonstrated that an active and intelligent cooperation of the membership is absolutely essential. Influenced somewhat by this practical acquaintance with the work I have chosen the following subject for discussion:

A PLEA FOR A MORE ACTIVE COOPERATION WITH THE LOCAL SECRETARY.

One of the most important resolutions regarding reorganization adopted by the American Medical Association was the following: "That membership in the county or district societies shall constitute membership in the respective state society without further dues, and that no one be admitted to membership in the state society, except through county or regular district societies." About that time the membership of the Illinois State Medical Society was in the neighborhood of 1,200 and the membership of the subordinate societies about 3,700. Many of the members of the state society held no local affiliations and a large number of the local members did not belong to the state society. Combining the county societies and the state has resulted not only in a membership of about 4,900, but has increased the number of county societies to 99 individual component societies. The state secretary's report at Rockford last year showed that there was a local organization in every county, and of these 92 per cent. were in an active state. The net gain in new members during the year 1907 was 505; 1908, 700.

Thus the predictions made by the secretary of the American Medical Association at the time of reorganization, that the membership of the state society

would be greatly increased by adopting the county society plan, has been fully realized.

So slow are we of the medical profession to awake to our opportunities that it has been estimated that there are probably 3,000 men in the state that are not in any way affiliated with the present organization. Some counties have two classes of members—local members, who pay a nominal sum toward the expenses of the county society, and county members, those who pay the regular dues of the county society, which includes those of the state society. Thus there still seems to be a very important work for the county secretaries to perform.

Any one who has read Dr. J. N. McCormack's article on "Organization Work in Illinois," which appeared in *THE JOURNAL* for February last, can not but feel the conditions therein described are not such as would make the honest and conscientious doctor feel very proud of his state.

The fact that the meeting of the business body of the state society, the House of Delegates, is in reality only a gathering of the representatives of the county societies lays a great responsibility on the membership of the county organizations. Just in proportion as the individual member of the county society posts himself on the needs of the state as a whole, will the problems and anxieties of the state organization be lessened. Let me quote here from an editorial in *The Journal of the American Medical Association* of Sept. 2, 1905 on "The County Society and the Organization Movement."

"The recognition of the importance of the county society as a unit is the basic principle on which the work of organization has been and is being conducted. The most important unit in the scheme of organization is the county society; then comes the state association and the American Medical Association. The last is the least important of the three; the first, the county society, the most important.

"Every effort that has been made by the American Medical Association in developing organization has been made with the above principle in view—the importance of the county or local society.

"Now the machinery all over the country is practically complete, and results must be looked for; these are many, but the most important is the making of the county society something more than a name—something more than a piece of machinery lying idle, rusting. It must be a living force to dignify medicine as a profession; to increase public respect for and elevate the material, moral and intellectual status of that profession.

"How can this be accomplished? How can the county society be made a power for good to those who belong to it and to the community? In many and various ways. The first thing to be recognized, however, is that the average county society, if left to itself, will become dormant. There are many exceptions, but this is the rule. Another thing must be appreciated: If a society can be made a living, active force for good in one community, a similar society can be kept up in another community where similar conditions exist."

With the object of preventing the county societies from becoming dormant and taking advantage of the second fact, that every county may have a wide-awake organization if it chooses, Pennsylvania and Ohio have held meetings of the secretaries of the component societies of their respective states and reports are continually coming in of other states that are following their example. Illinois was third on the list, for, as you know, we had a very successful and enthusiastic meeting at Rockford last May. Dr. F. R. Green, assistant secretary of the American Medical Association, informs me that he is to address a similar meeting at the Iowa State Meeting at Des Moines May 10.

It is generally conceded that, while the state and national societies are necessary, their greatest value depends on the fact that in them can be centered the power and influence of the county society. The county or district society furnishes to every physician the opportunity of membership, which may be of the greatest professional, social and material advantage to him. The work being done by the various county societies differs, of course. Some are doing splendid work, have enthusiastic meetings and are doing much to wipe out old feelings of

petty jealousy and selfishness, which do so much to render the work of the society impotent. The influence of our organizations is being felt in the community and the people are awakening to the value of teachings of the profession as applied to the public in general.

Much of the success or failure of the local society depends upon their choice of officers, especially that of secretary. To quote from the address delivered before the secretaries last year by our beloved Dr. Ensign: "From the very nature of the county medical society and its usual form of organization, together with the corps of officers necessary to the proper conduct of its business affairs, and the successful accomplishment of the commendable purposes for which it is constituted, it may at once be seen that on the secretary, more than upon any other member of the society, rests the principal burden of the organization's success, and such is the eventual experience of nearly every local medical society."

It has been affirmed by some one that "Any old thing will do for a president, but the secretary must be a person who possesses a special and peculiar fitness and an enthusiasm which is unquenehable." I am glad to think that most of our societies are awake to the fact that, in order to make the most of the opportunities open to the organization, it is absolutely necessary to have, first of all, a wideawake, active, devoted and conscientious secretary, one who is not content to "think society once a month, or twice a month, or every two months, but is thinking and planning all the time."

Those of you who have such a secretary know what a comfort and pleasure it is to have one that is in the habit of keeping complete and accurate records of the transactions of the society, whose files of members and non-members is always revised to date, who never fails to send out the notices of the meetings promptly and in ample time, and who is prompt and courteous in his correspondence. He is sure to take an active interest in the state society, attends the conference of secretaries and other medical meetings in the surrounding counties and is one that is always alert to bring back to his home society the best things that he sees and hears while there.

My ideal reaches still higher, for, while I would have him possess all these and more, I would have him always the first one at the place of meeting to welcome the invited guests and the stranger. He who has perhaps only recently arrived in town, whose future attitude to your local profession may be molded along happy lines more by a courteous and hearty handshake than by handing him any code of ethics. I would have him honored and respected by the laity as well as by the profession. One who has time to interest himself in humanity, one who is always in the front rank of those fighting the Great White Plague, contending for pure water, pure milk and pure air; a good citizen, a conscientious physician and, above all, a gentleman.

If your secretary is not one of these, but is one that is satisfied to do only the things that can not possibly be neglected, my advice to you is to select another man as soon as possible after your return from this meeting. The present era is pre-eminently one of advancement, and the choice of a secretary should be influenced by the spirit of progress which now prevails in the medical profession. Let us inquire in what way we, collectively and individually, can help the secretary to carry out those high ideals in society work which have been held up for our emulation.

To begin with, there is a privilege which, whenever it seems proper and wise, every county and district society as a whole should avail themselves. It is this: Select your secretary as chairman of your delegation and pay his expenses to the state meeting each year. If perhaps your county is so situated as to make it very difficult as well as expensive for him to attend, you will, if you send the right man, never regret the outlay. It should be generally expected now by every county society that its secretary should attend the conference of secretaries each year. I am satisfied that we are just entering upon a new and mighty era, and that it is essential that the secretaries of all local and district societies

should keep in touch with the movement and that they receive the benefit of the counsel and experience of their brother secretaries at the annual meeting.

WAYS OF HELPING THE SECRETARY IN HIS WORK.

Promptness and regular attendance at the meetings. This is a duty which every member owes not only to his society, but to the secretary. It is, of course, impossible for some to be on time. Some people never get to church or entertainment until it is half over. Such are hopeless, but nevertheless there are many others who can be urged to think of this matter and who will be glad to cooperate with the officers of the society when the matter is brought to their attention. Imagine the feelings of your secretary to find that there are not enough members present at the opening of the meeting to welcome the strangers, many, if not all, of whom he has invited personally and who had assured them of a cordial welcome by the society.

Help your officers to open the meetings promptly as advertised, and do this by being on hand yourself. In reference to regular attendance at the meetings, it is largely a matter of habit. I think that it is generally conceded that it is a good thing for every doctor, on hanging up his shingle in a new town, to seek a membership in the local society and begin at once to attend the meetings regularly. Some physicians have a sign displayed in their offices, stating that on certain days they will be absent from their offices, attending the meeting of their medical societies. I feel that these men gain in every way by their plan. The people are quick to learn who is keeping up and who seeks the society of his brother practitioners, and the majority of the kind of people with whom you want to do business will not be negligent in bestowing their patronage on the deserving. Let me urge you, then, to become a regular and prompt attendant at every meeting of your medical societies.

No matter how few there may be in your society, there is never a time when a good hearty handshake and a courteous enthusiastic welcome will be out of place. Your secretary knows and endeavors to furnish all this, but if some of you will appoint yourselves on a committee to help him out it will give him very great pleasure and encouragement.

In Jo Daviess County they have a plan which works most successfully. There the county society meets in different parts of the county in succession, thus offering the opportunities of attending and entertaining to each person in turn. The plan which has helped as much as any to make that society the peer of any in the state for its size is that of a special method of entertainment.

I understand that they take charge of you at once upon leaving the train and never let go until you are back on it on the way home. They never let a visiting doctor spend a cent if they can help it and they generally can, and what is the best part of it all is that the local profession vie with each other to make the meeting a success. Dr. Smith could never have achieved such a reputation as a secretary if he had not the constant and conscientious support of his colleagues. Help to develop a spirit of cooperation in this respect and your society will be the gainer.

One of the many desirable qualifications of a successful secretary is that of being able to enter into the most cordial relations with each and every member from the oldest to the youngest. And that is not always an easy thing to accomplish. Especially is this made more difficult, if not impossible, by the attitude of some of our members who are always ready to criticize the program of the meetings, but who, when asked to take a part by preparing a paper, either say that they are too busy or perhaps do not answer the letter at all.

Here, then, is a practical way in which each and every one in the society can be of great help to the secretary: Be always ready to fill a place on the program, remembering that you are not doing this for the secretary, but for the society, and that in so doing you are in reality contributing to your own culture and learning. For whoever read a paper or led in a discussion at a medical meeting without getting far more out of it in real value than any who may have listened? It implies work, but a work of pleasure it should be if every man

regarded it as a matter of pride to help make the meeting a success. A desire to do one's best in this, as in all other matters, always brings its own reward.

Who of you does not shudder when you think of that cold wave that sweeps down on the meeting immediately the paper of the evening is finished, especially if by a visitor, and just before the fellows get their wind in order to discuss the paper? There is one man in our society that has been a source of the greatest possible help and encouragement to the writer. This man is always ready to jump up and start the ball rolling, although he sometimes has to tell a story or two to sort of collect his wits. All he ever needs is a wink and he is on his feet. Every secretary and president wants to know just such a man in his own society, and you, any one of you, can win everlasting praise and friendship by taking this thought to your own meeting with you. I have often thought that with a good man to read a paper and this friend of mine to open the discussion and a good live secretary to keep a record of the meeting we could have a first-class meeting any time, anywhere.

The financial duties of the secretary are such as require no small part of his time and labor. It is expected that he will collect the yearly dues from each of his members and forward the proper amount to the state secretary promptly. Of course, there are always some that neglect to see the secretary, and he either has to make a special point to see them or, which is often easier, put up the money himself and trust to luck to get it from the member the next time he sees him. This is done for two reasons: First, the secretary is anxious to have his society make as good a showing as possible and, secondly, if he does not put up the money it is as likely as not the individual member will say, "Why didn't you send it in? Am I not a member of this society? You know I always pay whenever you ask for anything, don't I?" Now, *there is another practical way* of cooperating with your secretary. Do not wait until he sends you a bill. You know how much you owe your society every year. Pay it before he gets a chance to ask you for it. It is a standing joke at some of our society meetings when bills are read, and especially when there are no funds in the treasury, to move that the secretary pay the bills as read.

This does not apply to many probably, but it is not a laughing matter to the secretary unless he has been chosen with that particular object in view and enjoys the experience. In the vast majority of county societies there are no financial or other emoluments worth mentioning, and it is eminently fitting that the society and its individual members see to it that every possible assistance, both financial and otherwise, should be accorded the secretary.

COMMITTEE WORK.

As a general thing, each county society provides itself with a full complement of committees, but it is interesting to notice how few have anything in their by-laws concerning the duties of any of these. This undoubtedly has been due to oversight and entails a great deal of work on the part of the secretary. Attention to this matter by defining the duties of each committee by by-law would greatly relieve the secretary and would facilitate the work of the society very greatly. Of the various committees which constitute the working force of every county society, I shall mention only two—the medicolegal and the committee on public health and medical legislation.

The Medicolegal Committee.—The chairman of this committee is a member of the state committee and as such should keep in touch with the aims and methods of that body. Each member of this committee, by informing himself of the exact objects and functions of this part of our organization, can be of the greatest help and comfort to the secretary.

The Committee on Public Health and Medical Legislation.—I believe that this committee is destined to become one of the most important in our entire organization. It exerts its influence on the public and profession alike. It should keep in close touch with all matters concerning the public health and legislation affecting either the nation, state, county or city. The time is coming, and I trust not far distant, when all matters which concern such questions as

the public water supply, garbage disposal, sewerage, milk supply, school and personal hygiene, meat, food and drug inspection, etc., will be referred to the county medical society and by them to this committee.

The special session of the state legislature this past winter, being so much engrossed with investigations and semi-political matters, has not given the committee much anxiety. The next session, however, will doubtless see the usual number of nefarious bills presented, and it behooves each member of the society to maintain an attitude of watchful expectancy. As a practical way of assisting your secretary and the committee I would suggest that each of us make it a point to become acquainted with our respective legislators and commence the campaign by endeavoring to establish the fact that we are interested in these matters solely from a humanitarian standpoint. This particular point may well be emphasized, it seems to me, for it is the one which the average member of our legislative bodies appears to comprehend the least. The part which we as individuals take in the work of this committee demands a special faithfulness and promptness. If a member is requested to write or interview his representative in reference to a matter which is being considered by the committee, he should take steps at once to acquaint himself with all the facts in the case and to thoroughly understand the attitude of the committee in attempting to influence legislation.

This being accomplished, he should promptly communicate with his representative or senator. As a rule such a course will receive courteous consideration and attention if presented in time.

Finally, in all the problems of securing harmony of action in our profession; of fostering a more charitable attitude among our colleagues; of overcoming the lethargy for study; of arranging practical methods of postgraduate instruction by instilling in each member of the local society a willingness and a desire to be taught; of making each meeting of the society a success by a cordial cooperation in the arrangement of and participation in the program; of elevating the status of the profession in each community so that it may be enabled to accomplish more and more for the common weal; of medical education and legislation, and in the more recent propaganda of medical economics; let us try to realize that there is a work for each of us, irrespective of age, experience or previous condition. Let us go back to our respective county and district societies, firmly resolved to give more of our time, energies and intelligent cooperation to the work of our great organization. In so doing you will have made a most pleasing response to my plea for a more active cooperation with the local secretary.

DISCUSSION ON THE PAPER OF DR. LOVEWELL.

Dr. Jesse P. Simpson, of Palmer:—Dr. Lovewell's paper may be likened unto a live wire, since it gives light at every contact. I think this suggestion might be added to what he has already said, that when a county society has discovered a good secretary, it should reward him in a substantial way. We presented our secretary, Dr. Barr, with a typewriter with which to expedite his work.

Dr. J. H. Bacon, of Peoria:—There is one thing in local society work that has puzzled me, and that is whom we should invite to become members. We have a board of three censors and every applicant's name that is presented to the society for membership is referred to this board. When the board approves of it, the name of the applicant goes back to the society and is voted on. It has appealed to me that the local medical society should not keep out doubtful members. Even though a great many have a personal aversion to some men, I believe we can accomplish more by having them in the society than out of it. When they are members we have a whip hand to keep them straight. Of course, we can not get the majority of members to view the matter in that light, and when certain names are proposed for membership they are invariably voted down for personal reasons, although really they should be elected members. Applicants for membership in the local medical society, whose applications are voted down, are thereby deprived of the privilege of attending the meetings and becoming members of the state society and of the American Medical Association

because of the personal jealousies of a few members. I do not think that is right. I would like to see the state society place itself on record in a clear and unmistakable manner in regard to what we shall do with these applicants, whether the county medical society shall keep them out until the state society takes action in regard to them or not. I am firmly convinced that if we had these applicants as members in our societies it would only be a few years before they would become ethical if they were not ethical before their admission. Such applicants are being kept out of numerous societies now and lessen the total efficiency of the county and state societies. What shall we do? Until the state society takes some action we will have trouble, and it will keep out active men whom we ought to have as members. Until we can get these men in the local society, so that they can become members of the state society and of the American Medical Association, we are losing the great efficiency of these men and their influence in state and national politics.

Dr. Lovewell (closing the discussion):—In writing my paper I found the field a very large one to cover. There are some other points I would like to speak of, but our time is so limited I will not do so.

I simply wish to thank you for listening so attentively to my paper, and I hope that you may next year feel some effect as the result of greater activities on the part of local and county medical societies.

There is one thing I desire to impress upon your minds, and it is this: Each county medical society represented at this meeting, whose secretary is absent, should see to it, if it does not do anything else throughout the entire year, that that secretary be inoculated with that form of enthusiasm which will make it absolutely necessary for him to attend the meetings of the state medical society. (Applause.)

HOW TO MAKE THE SECRETARY'S WORK EASIER.

H. N. RAFFERTY, M.D., ROBINSON, ILL.

The subject assigned to me seems to be an unreserved acknowledgement that the work of the county secretary is hard—that the real responsibility and labor of the real county society, as it exists to-day, falls on the shoulders of this official; hence I shall bother neither myself nor my hearers by attempting to prove this self-evident and universally acknowledged fact.

We find the county secretary as the Atlas of present-day medical organization, supporting this ever-increasing burden with as much patience and fortitude as did his mythological namesake of old. Granted, then, that his work is always difficult, often annoying and sometimes almost unpleasant, can it be made less so, and how? Those of us who have been in the harness since the re-organization under the present plan can certainly look upon the conditions of to-day with feelings of pleasure and satisfaction, when we turn back the pages of our mental scrapbooks and glance at the organization infant in his swaddling clothes—that era in which we had to combat, among other things, the influence of those few who insisted, with more perseverance than common sense, that they were being robbed of their personal liberty, in things medical, and forced into the ranks of the state society. How different and how much easier now, since we all understand that there is no state society, except as it exists in its component parts—the county societies—and that crossing the threshold of even the least of these gives one a passport to all the bounties and pleasures of the whole.

To my mind, there are three sources from which this lessening of the county secretary's work may come, viz.:

(1) The members of the county society, (2) the secretary of the state society and (3) the county secretary himself.

I believe the members can help most of all to lighten the work, by hearty cooperation in all of the enterprises of the society, by prompt payment of dues, by response on the program when requested, and, finally, by working always and in all ways for the good of the cause.

The secretary of the state society can very materially aid the county secretary, and especially if the latter be new in office, by frequent letters of explana-

tion or suggestion, by prompt attention to local correspondence, and, finally, by the accurate recording of all financial transactions between the local and state bodies. In order to expect this attention to details, and, what is of far greater importance, the ability to foster it, in such a state as Illinois, it is my conviction that the state secretary should be well paid for his services, which require a large expenditure of time and incur much responsibility.

And now we come to consider how the secretary himself can help to make his work easier, and I have purposely reserved this for the last, as it is with this phase of the question we of this audience have most to do. The county secretary, imbued with an earnest desire to make his work lighter, and at the same time more fruitful, should first establish system and up-to-date business methods in the conduct of his office. He must be able to keep up his membership list and his collections, not by begging the physicians of his county, on bended knee, to join the society or to pay their dues, but by being able to show them by a convincing letter or conversation that it is to their interest to belong to their county society and to be in good standing financially—in short, that this is the open sesame to all medical organization and cooperation, the benefits of which are without limitation.

If one is found who is held back by the idea that the society is organized and maintained from motives of selfishness, who is unaware of the higher aims of the organization work, I would like to read to him Article 2 of our constitution, which is as follows: "The objects of this society shall be the advancement of knowledge on all subjects connected with the healing art; the elevation of the character and the protection of the rights and interests of those engaged in the practice of medicine and surgery, and the study of the means calculated to render the medical profession most useful to the public and subservient to the interests of humanity."

The secretary should see to it that there is in each locality some active member who will keep in touch with the non-members, the new physicians and those not so new, and who will bring these men to the meetings of the society as visitors and prospective members. Statements of the members' financial standing in the society should be sent at proper intervals, and members should be dropped from the list after refusal to pay up when such notice has been given, as no county society can afford to keep up the per capita tax of delinquents.

The secretary should give himself plenty of time in which to arrange programs, or if the society has a program committee, see that it is composed of competent and active men. Personal experience has led me to believe, however, that where there is a program committee the secretary has both program and committee to look after.

Announcement of the meetings should be sent out on time, and the secretary himself must be faithful in attending the meetings, for if he is not both prompt and enthusiastic the members take the cue and will also be lacking in these essentials. Get them interested in the advanced ideas of scientific society work, such as the postgraduate instruction, remembering that whatever form of program used it is the discussion which indicates the success of the individual effort, and that it is this feature which should be encouraged.

The social side of the work should not be neglected, as it is over the luncheon cover, in the fragrance of the postprandial cigar, that we really come to know our colleagues' good traits and to forget the bad (for we all have some of each) and to learn, in the language of David Harum, that "most people have as much human nature as others, if not more."

All these are little things you say, but I tell you in all earnestness that it is the combination or admixture of these same little things which has made in the past, and will in the future make the secretary's work easier and more enjoyable.

Do not pull out of the harness too soon, as long as the society is satisfied with your services, or until a member turns up who can and will render better service, and then retire gracefully. And when the fitful fever of the busy doctor's life is over I know of no epitaph more fitting than this:

"Here lies Doctor Blank, a county secretary, who, by his perseverance, tact, and good cheer, helped to strengthen, elevate and unite the profession of his locality. May he rest in peace, for neither rest nor peace knew he in this world."

HOW DOES POSTGRADUATE STUDY HELP THE COUNTY SOCIETY.

MARIAN K. BOWLES, M.D.

The experience of secretaries leads to the deduction that the busy practitioner is willing to spend his precious time for value received, and the more he receives the more time he is willing to spend. With a deep appreciation of how essential it is to study to keep abreast of the progress of medicine, he will enter in any compact which will enable him to work to the best advantage. Early in the practice of medicine he longs for a review of first principles in the light of his growing experience, and later he realizes that as years pass by much of the foundation work is growing misty and slipping away, and he never gathers it up again, though he always means to.

All of the reasons that obtain for the systematic college course are arguments for the systematic postgraduate course in the county society work. The doctor is not a "self-made" man. The graded school, the college and the school of medicine have had him in hand during the formative period of his life, and then he is turned out to browse here and there as impulse and his practice seem to direct. Heretofore his study has been organized according to the best known mental laws. The doctor with his knowledge of neurons knows that the two ends of education, viz., mental discipline and the acquirement of knowledge, are accomplished by the association of ideas. The student does not have geometry once a month, physics once a month and Latin once a month—that plan would be analogous to the usual study plan of the graduate physician.

The circumstances that surround the busy practitioner militate against systematic work. There are no more quiet hours of continuous study. The telephone, the varied demands of practice, many important interests, both personal and civic, break into his train of thought until after a time systematic efforts at study are abandoned and his power of concentration, his habit of thinking everything out to the bottom, become lessened; his enthusiasm, his ideals, his scientific interest with which he came out of college, wane. The medical society work should, first of all, supply the doctor's greatest need as a student. He should be able to find in it a continuation of the principles of education of the college course, instead of the heterogeneous composition of the usual society's work.

Occasional programs in later years have attempted to organize the work under the name "symposium." The outlines of the American Medical Association postgraduate course, are an elaboration of the symposium idea with the advantage that they may become and are fast becoming the universal program. They hold the student physician to a certain line of work each month. He systematically reviews all the literature in his library—especially the new book that he has not had time to look into; he reads and sifts his magazine articles on the subject under consideration and then he goes to the society and measures up his work with his fellow practitioners. He is perfectly free to express himself because he has had an equal opportunity of careful preparation. No one knows a subject thoroughly until he is able to express himself clearly, and here the doctor is able to see wherein his knowledge is deficient. For only the kind of knowledge that admits of free expression in both word and deed is good enough for the doctor.

To sit at the feet of a great teacher, to imbibe the ideas that he has worked out and enjoy the power of expression that he has cultivated, is, indeed, pleasure and a profit, but how much more valuable is it to the individual member, to gather all the information possible on a subject, to associate the literature with knowledge gained from his own experience, to give expression to his own ideas, and to gather the experience of his own neighbors working under similar conditions of advantage and disadvantage, and then, if possible, to supplement

that work by an evening with some lecturer, whose wider opportunity enables him to clear up the dark places and to direct medical thought along the line of prospective discovery.

The county society to be effectual must call into activity the greatest number of members possible. You can always count on the help of a few from a sense of duty or from a desire for self-improvement, or occasionally some one who has a helpful message to impart, but the larger number are content to be quiet observers, because they feel that they have nothing new and startling to contribute and depreciate the importance of discussing the problems of every-day occurrences. The young practitioner feels his lack of experience—the old practitioner fears his lack of knowledge of recent methods, and all are expecting unfriendly criticism. The postgraduate course with its thorough consideration of everything new and everything old is a great leveler. Everybody has an equal chance, and with the expenditure of a fair amount of energy he gains the approval of his colleagues.

Another advantage of the postgraduate course is that it promotes uniformity in practice, and the profession in a community, working out problems together. Choosing and discarding methods, have a greater opportunity to dispel the popular idea that doctors chronically disagree. The postgraduate course, offering, as it does, a perpetual common meeting ground, promotes sociability and fraternalism better than any other plan. Our members enjoy the medical dinners with their stories and jests, but this sort of friendly association they can have with any man or body of men. There is a deeper bond of sympathy among physicians than is touched upon in the common social function. The thing nearest the doctor's heart is his profession and upon that rock the truest friendships are built. He can go out from the dinner and misunderstand his neighbor's conduct in some professional move, but he can not misunderstand a man in whose soul he has read honesty of purpose while they together were striving to discover Truth.

The postgraduate course plan is bound to succeed, because from any standpoint it is the logical program, but it is yet in its incipient stage. The course needs readjusting and the members of our societies need readjusting. There will be shattered ideals along the line of development, but these will pave the way to success for the future secretary.

With the adoption of the plan come added work and anxiety. We must study the possibilities of the program and be ready with helpful suggestions. We must be on the alert for clinical material and apparatus to make the work as practical and concrete as possible. Definite dates and assignments should be in print, no matter how small the society, and each man should carry through his program on the date assigned, and the assignments should be made in June. The reward is the infinite satisfaction in looking back over the year and seeing something definite accomplished, the best of which is the preservation of the student spirit.

BOOK NOTICE.

A MANUAL OF OBSTETRICAL TECHNIQUE AS APPLIED TO PRIVATE PRACTICE, with a Chapter on Abortion, Premature Labor and Curettage. By Joseph Brown Cooke, M.D., Adjunct Professor of Obstetrics in the New York Polyclinic Medical School and Hospital. Illustrated. Sixth Edition, Enlarged and Fully Revised. Philadelphia and London: J. B. Lippincott Company, 1908. Price, \$1.50.

This valuable manual, which the author modestly calls a "little book," has passed through six editions and several reprints in eight years, the demand for it proving conclusively its value. If this manual could be placed in the hands of every practitioner of midwifery in America and the teachings carefully followed, there would be a saving of thousands of lives every year. We bespeak for the work a cordial reception by our readers.

NEWS OF THE STATE.

PERSONALS.

Dr. Edgar Holm, Waukegan, has returned from Europe.

Dr. Alexander H. Ferguson, of Chicago, has returned from Europe.

Dr. and Mrs. Paul Allyn of Waverly, Ill., left Nov. 14, 1908, for Europe.

Dr. and Mrs. Philip S. Doane, of Chicago, returned from Europe October 25.

Dr. J. H. Dickerson of Taylorville has bought a jewelry store in Litchfield, Ill.

Dr. T. W. Morgan of Virden will spend three months studying in London and Paris.

Dr. William Hessert has been appointed attending surgeon to St. Joseph's Hospital, Chicago.

F. W. Kerchner, after taking a postgraduate course in Chicago, will leave Millstadt and locate at Belleville.

Dr. A. J. Blickham, Quincy, who has been suffering with duodenal ulcers for some time, is able to be out again.

Dr. Joseph L. Miller of Rush Medical College, Chicago, has been elected an honorary member of the Adams County Medical Society.

Dr. O. H. Deichmann has returned from Panama, where he was in the government service, and has reopened his office in Springfield, Ill.

Dr. Carl E. Black of Jacksonville, Ill., addressed the nurses of the graduating class of the Ryburn Memorial Hospital of Ottawa October 9.

Dr. Robert F. Hayes, Freeport, who has been practicing medicine in Stephenson County for more than fifty years, announces his intention of retirement.

Dr. John Gordon Wilson has resigned as assistant professor of anatomy in the University of Chicago, to become professor of otology and head of the department in the Northwestern University Medical School.

Dr. G. H. Mundt, 6300 Halsted Street, Chicago, read a paper on "The Eye in the Acute Exanthematous Diseases" before the Porter County Branch of the Indiana Medical Society, at Valparaiso, Ind., on Oct. 6, 1908.

NEWS NOTES.

A fire in the Hinsdale Sanatorium, November 11, destroyed the living quarters of the nurses and other employés and caused a loss of \$5,000.

The new Isolation Hospital, Chicago, was recently opened to receive patients. It is to be used for the care and treatment of diphtheria and scarlet fever.

Miss Mary C. Wheeler, superintendent of Blessing Hospital, Quincy, has been selected by Governor Deneen as one of the members of the Board of Examiners for nurses.

A new medical building for the Edward Sanatorium, Naperville, Ill., will be constructed from the fund recently given by Mrs. Keith Spaulding. This will provide accommodations for 25 additional patients.

The Chicago Clinic and Pure Water Journal, Dr. Geo. T. Palmer of Springfield, Ill., editor, was sold on Nov. 9, 1908, to Dr. Thos. G. Atkinson of Chicago, who for four years has been editor of the *Medical Standard* of Chicago. The new publisher will take charge with the January 1909, number.

The Lake Forest Hospital recently made an application for a certificate of incorporation, and there is already a fund for the erection in the hands of the board. Real estate valued at \$2,500 was bequeathed to the hospital by J. V. Farwell, \$2,500 was realized by the annual horse show, and the city appropriated \$3,000.

The new Maurice Porter Pavilion of the Children's Memorial Hospital, Chicago, was opened November 12, when the women of the auxiliary board held a reception for those interested in the hospital. A Wagner concert is to be given at Orchestra Hall December 7, the proceeds of which are to be used for the support of the hospital.

The Central Hospital Association of Chicago has acquired the property of the Central Hospital, 309 Fifth Avenue, the Woman's Hospital, Thirty-second Street and Rhodes Avenue, and the Illinois Hospital at Washington Boulevard and Halsted Street. Dr. Jacob E. Burkeholder is announced as president of the association.

After a delay of two years, the city of Clinton has accepted the gift of a \$25,000 hospital, made to the city by the late Dr. John Warner. The delay was caused by the disinclination of the city to defray the expenses of maintenance, and, therefore, the council refused to accept the building until the Warner heirs had provided a fund for this purpose.

The corner stone of the new South Chicago Hospital was laid October 25 by H. M. Sloan, president of the association, assisted by Dr. William A. Evans, health commissioner, Albert W. McLaughlin and Engelbrecht Nelson. The hospital will cost \$25,000 and will accommodate sixty patients. The building is to be three stories in height, 100 feet long and 50 feet deep.

On Jan. 15, 1908, the Oconomowoc Health Resort was entirely destroyed by fire. Recently a new building has been opened which is absolutely fireproof, and is constructed along lines to meet every requirement of their patients as to completeness and convenience, and the equipment is thoroughly modern and most adequate for the treatment of the class of cases which this institution is open to.

The Illinois State Board of Health has issued a pamphlet containing a register of the legally qualified physicians in Chicago. The register was issued as a result of the difficulty physicians in other portions of the state have encountered in communicating by telephone with physicians

they wished to reach in Chicago. The list contains 1,848 legally qualified physicians and nearly 500 physicians to whom certificates were issued by the state board of health from March 16 to Aug. 15, 1908.

Recently the City Homes' Association opened a new crusade against filth and disease in the congested districts of Chicago—a crusade for fit living conditions and compliance with the present building laws. This announcement was followed by an even more significant one from the School of Civics and Philanthropy, to the effect that some fourteen public and civic bodies have definitely agreed to cooperate with the health board and the City Homes' Association in a thorough and systematic investigation of housing in Chicago. Among these bodies we find the City Club, the Medical Society, the Bureau of Charities, the Tuberculosis Institute, the Woman's Club and several other.

The fight in the state's attorney's office against criminal abortion has resulted in a new interpretation of the law, under which it is claimed conviction will be more easily secured. In the case of Mrs. Lucy Hagenow of Chicago, sentenced to twenty years' imprisonment for abortion, her attorneys made a point, on appeal, that her case was prejudiced because of testimony admitted to show that in ten years she had caused the deaths of at least ten women. The Supreme Court asserted that, while this case may have been prejudiced by the admission of other cases, this was not the fault of the law, but the result of facts and circumstances surrounding the case. The opinion of the Supreme Court reaffirmed the order of the lower court, thus practically sentencing the aged criminal to life imprisonment.

Two new cottages erected by the state at the Illinois Hospital for the Insane at Bartonville, at a cost of \$100,000, equipped with eight solariums for the continuance of the work of phototherapy, inaugurated by Superintendent Zeller, were dedicated Thanksgiving day. Phototherapy is studied in no other public or private institution in the cure of mental trouble except in Denmark, where it is used in the cure of diseases, and Dr. Zeller recently received a letter from Munich asking for the results of his experiments. The solariums are eight in number, two equipped in ruby, two in violet, two in amber and two in opal. Dr. Zeller has found that the despondent insane patients are enlivened when placed in the red room and the violent patients soothed when in the blue room. Opal is antiseptic and aids the consumptives. Each of the cottages accommodate 150 patients.

MEDICAL SOCIETY NOTES.

The Cook County Alumni Association held its annual meeting and banquet at the New Illinois Athletic Club, November 23. William E. Quine, William L. Baum, Arthur E. Eustace and Theodore Ticken spoke before the association.

At the twenty-first annual meeting and banquet of the Scandinavian-American Medical Society of Chicago, held October 15, Dr. O. Theodore

Roberg was elected president; Dr. E. Olsen, vice-president, and Dr. Andreas Klovstad, secretary-treasurer.

The annual meeting of the Montgomery County Medical Society was held in Litchfield. The officers elected were as follows: President, P. M. Jelly, Litchfield; vice-president, W. W. Douglas, Hillsboro; secretary and treasurer, H. F. Bennett, Litchfield.

Dr. Pettit, president of the Illinois State Medical Society, lectured before the McDonough County Medical Society, October 21, on the general subject of tuberculosis. Dr. Pettit also spoke October 19 at Monmouth before the Warren County Medical Society and the general public was invited.

Twenty-two members of the Rock Island County Medical Society met in regular session at the Manufacturers' Hotel, Moline, Oct. 13, 1908. A dinner was served at 6:30 and was followed by a program. The program consisted of a symposium on typhoid fever, and five interesting papers were read.

At the meeting of the Canton Physicians' Club, October 20, Dr. Pettit delivered an interesting lecture on tuberculosis and on medical organization. He also gave a lecture on tuberculosis, October 28, at the Presbyterian Church in the city of Winchester, and it was both interesting and profitable to the public in general.

The Lake County Medical Society, at its meeting in Waukegan, October 29, adopted resolutions regarding the publication of the names of physicians in relation to operations, injuries and other medical matters, and requesting that the various papers of the county refrain from publishing the names of physicians under such circumstances.

At the annual meeting of the Chicago Gynecological Society, October 18, the following officers were elected: President, Henry F. Lewis; vice-presidents, Drs. Charles E. Paddock and Rudolph Holmes; secretary, Dr. Gustav Kolischer; treasurer, Dr. Charles B. Ree; editor, Dr. Emil Ries; pathologist, Dr. George Schmauch; counselor, Dr. Robert T. Gillmore; alternate, Dr. Channing W. Barrett.

At the annual meeting of the Southern Illinois Medical Association, held in Murphysboro recently, the following officers were elected: President, Dr. George S. Rainey, Salem; vice-presidents, Drs. Osear R. Ormsby, Murphysboro, and William S. Wiatt, East St. Louis; secretary, Dr. Charles W. Lillie, East St. Louis; treasurer, Dr. Alexis T. Telford, Olney. The next meeting will be held in East St. Louis.

At a meeting of the Streator Medical Club held recently it was resolved that all physicians in the city shall hereafter charge \$2.00 for making fraternal insurance examinations. The doctors for such examination have been receiving \$1.00, but as for similar examinations made for old line insurance companies they receive from \$3.00 to \$5.00, the medical men decided that they were underpaid by the fraternal organization and raised the charge.

The regular monthly meeting of the Brown County Medical Society was held October 17 and the teachers and parents of scholars were invited

to meet with them. Dr. L. J. Harvey of Griggsville was present and read a paper dealing with the various methods of ventilation in both the schoolroom and the home. Dr. Carl Black of Jacksonville read a paper on "The Adolescent Period," quoted from various eminent authorities and gave their views on different phases.

At the annual meeting of the Association of Military Surgeons of the State of Illinois, held in Chicago, October 8, the following officers were elected: President, Major Thomas G. McCord, assigned Fourth Infantry; vice-president, Lient. Com. David W. Graham, Naval Reserve; secretary, Major Charles Adams, secretary to surgeon general (re-elected); and assistant secretary, Major S. C. Stanton, assigned First Infantry (re-elected). The next meeting of the association will be held at Dixon.

The annual meeting of the Western Illinois District Medical Society was held October 30 in Jacksonville. Addresses were delivered by Dr. James W. Pettit, president, and Dr. Edmond W. Weis, secretary of the State Medical Society. It was decided to hold the next meeting in Quincy. Dr. John W. Adams, Carrollton, was elected president; Drs. John H. Riee, Quincy, and David W. Reid, Jacksonville, vice-president; Dr. William P. Dunean, Jacksonville, secretary-treasurer (re-elected); and Drs. Robert J. Christie, Jr., Quincy, Frank P. Norbury, Jacksonville, and Levin H. A. Nickerson, Quincy, censors.

The quarterly meeting of the Tazewell County Medical Association was held in Pekin at the city hall Wednesday afternoon, Oct. 14, 1908, Dr. C. G. Muehlman, the president of the association, presiding, and nearly every town in the county was represented. The meeting was one of much interest to all concerned. Dr. George Zeller, superintendent of the Bartonville asylum, was present and read an exhaustive paper on tuberculosis. It was the sense of the meeting that the annual banquet be held in Pekin. At the close of the session adjournment was taken to the Tazewell Hotel, where the medical men sat down to a most delicious banquet. The meetings of the association are continuously growing in interest and are becoming quite an event to members of the profession.

The ninth annual business meeting and banquet of the Sangamon County Medical Society which was attended by almost 100 physicians, was held November 9 at the St. Nicholas hotel, Springfield, and was one of the most interesting and successful gatherings ever held by the society. The early part of the evening was given over to the election of officers, the following being chosen to serve for the ensuing year: President, Dr. Walter Ryan; vice-president, C. L. Nelson; secretary-treasurer, G. T. Palmer; censors, O. F. Maxon, D. W. Deal and C. L. Oatton, all of Springfield. After the business session the members of the association and their guests were invited to a banquet, following which excellent talks were made by Dr. J. B. Herrick of Chicago, a professor of Rnsh Medical College, who took as his theme, "Methods of Diagnosis;" Judge Charles P. Kane of Springfield, whose topic was "The Cat in a Strange Garret," and the Rev. Frank W. Burnham, pastor of the First Christian Church, who used as his subject, "Religion and Medicine."

The medical societies of Champaign, Vermilion, DeWitt, Douglas and Piatt counties held a joint meeting in Illinois Hall, Champaign, Ill., Oct. 15, 1908, and the various county societies contributed about fifty members to the gathering. Naturally the meeting was of more interest to the medical fraternity, and the papers read were of a professional order. Dr. A. E. Dale of Vermilion County, Dr. Edmondson of DeWitt, Dr. W. A. Wiseman of Douglas, and Dr. C. M. Bumstead of Piatt each contributed a paper on a medical topic. Dr. W. F. Burres of the local society was not present to discuss the subject assigned to him. The feature of the meeting was the talk by Dr. J. W. Pettit, president of the Illinois State Medical Society, who spoke on the modern advancement of the treatment of tuberculosis, and what he said was very interesting and instructive even to a layman. Supper was served to the visitors at the Bearsley, after which an informal smoker was held in Illinois Hall. It was at the smoker that Dr. Pettit gave his talk.

The Mississippi Valley Medical Association held its annual session for the fourth time at Louisville, Ky., October 13 and 14. Many interesting medical and surgical papers were read and very enthusiastic discussion was indulged in by many of the members present. The address of Dr. Arthur Elliott of Chicago, president of the association, was heard by all the delegates in the Seelbach Auditorium. He spoke of "Currents and Counter Currents in Medical Advance." He was followed by Dr. George Dock of Ann Arbor, Mich., on "Tropical Diseases in the Mississippi Valley," and Dr. Arthur Dean Bevan on "The Surgery of the Kidney." The association concluded its session after electing the following officers for the ensuing year: President, Dr. J. A. Witherspoon, Nashville, Tenn.; first vice-president, Dr. Louis Frank, Louisville, Ky.; second vice-president, Dr. Albert E. Stern, Indianapolis, Ind.; secretary, Dr. Henry E. Tuley, Louisville, Ky.; treasurer, Dr. S. C. Stanton, Chicago, Ill. St. Louis was selected as the next meeting place.

The Central Illinois Homeopathic Medical Association held its twenty-seventh annual meeting at Springfield October 21. The following program was heard: "Conduct of Normal Labor," Dr. E. S. Smith of Urbana. Dr. Gilbert Fitzpatrick, attending obstetrician at the Cook County Hospital, Chicago, gave an account of two months' experience with surgical obstetrics in that institution. Dr. Joseph P. Cobb of Chicago discussed "The Feeding of Infants in Their Second Year." "Treatment of Aene," by Dr. L. T. Rhoades of Lincoln. "Back to the Neglected, for It Introduces a New Thought in Medicine," by Dr. F. G. Ketchum of Springfield. "Surgical Treatment of Enlarged Prostate," by Dr. H. R. Chislett of Chicago. The following officers were elected for the ensuing year: President, W. M. Honn, M.D., Champaign; vice-president, J. A. Lindquist, M.D., Springfield; secretary-treasurer, C. S. Bogardus, M.D., Clinton. The session closed with a banquet served at the Illini Country Club. About forty members were in attendance.

The Chicago Medical Examiners' Association has passed the following resolutions on the death of Dr. David J. Doherty:

WHEREAS, It has come to our knowledge that our beloved and honored associate, David J. Doherty, on Tuesday, Oct. 27, 1908, entered into his final rest; and

WHEREAS, The medical profession of Chicago has suffered, in his untimely decease, the loss of a wise counselor, a loyal friend and sterling character; and

WHEREAS, The Chicago Medical Examiner's Association deplores the sudden removal from its midst of a faithful worker, generous soul and efficient presiding officer; therefore be it

Resolved, By the trustees and members of the Chicago Medical Examiners' Association, in special meeting assembled on the 28th day of October, 1908, that we hereby tender our heartfelt sympathy to the members of his family and his legion of friends, and that we express our firm belief that his life and labors have not been in vain, but have ever been devoted to a noble and worthy cause; and that be it further

Resolved, That a copy of these resolutions be spread on the minutes of the Chicago Medical Examiners' Association, and that a copy be transmitted to the surviving members of his family; also, that a copy be published in the Bulletin of the Chicago Medical Society.

WILLARD D. BRODE,
WILLIAM E. DUNCAN,
ERNEST L. HAYFORD,
S. EISENSTAEDT.

Trustees.

The Military Tract Medical Society, one of the oldest medical organizations in the state, is almost a thing of the past. While it has not been officially disbanded, its regular meetings will be discontinued for the present and doubtless will never be held again. At the annual meeting of the association, held October 16 in the city of Peoria, there were only a few members present. Out of the thousand invitations sent out, thirty-five were accepted. The attendance from Peoria itself was noticeably small, and there was scarcely any interest displayed at the various sessions of the society. This condition of affairs is not a new one. For the last few years meetings of the Military Tract Medical Society have been a failure in the matter of attendance, in spite of the splendid programs provided by the committees in charge. Consequently it was thought best to discontinue the annual gatherings. Owing to the sentiment on the part of the old members of the organization, some of whom have been active workers since it was first organized, it was thought best not to officially disband, but rather to discontinue regular meetings and hold assemblies in the future, subject to the call of the president and secretary. This arrangement was made with the understanding that these officers were not in favor of future meetings. So it is more than likely that the Peoria convention will be the last ever held. The discontinuance of the Military Tract Association is due to the establishment of numerous other medical societies since that of this pioneer organization. When this district society was first formed it was about the only one of its kind that embraced the country known as the military tract. Since that time societies have been formed in cities, counties and in the state. They seem to fill the real need of medicine, and are much more popular. The Military Tract Society is a very old one. It was first organized in 1858, some sixty years ago. Most of the old men in the medical profession in Monmouth were formerly members, but, like those of other cities, have dropped out, and have taken up active work in city and county societies.

PUBLIC HEALTH.

Batavia reports nine cases of typhoid fever.

The schools at Isabel were dismissed October 19 on account of diphtheria.

Twelve cases of smallpox have broken out in the Providence Church neighborhood, six miles west of Peoria.

Maywood is said to be suffering from an epidemic of typhoid fever, twenty-five cases having been reported in the last ten days.

Fraleay and Pleasant Hill schools in Douglas County have been closed on account of an epidemic of diphtheria in the neighborhood.

Almost 100 cases of smallpox were discovered in Fulton and Schuyler counties, and nine cases of smallpox were found near Dix, Ill.

Scarlet fever is reported from Carpenterville and East and West Dundee. Braceville is reported to have a number of cases of diphtheria.

The State Board of Health announces that it will furnish diphtheria antitoxin without charge to any person in the state who may need it, but only on application to the attending physician.

It is reported that Dr. William A. Evans, commissioner of health of Chicago, has filed suits against twenty physicians, patients and householders, charged with breaking the quarantine laws regarding scarlet fever and diphtheria.

The epidemic of diphtheria and scarlet fever in Waukegan is said to be due to milk obtained from insanitary dairies and farms near the city. The epidemic is apparently on the increase, and conditions in North Chicago are said to be alarming.

There were reported during October 2,281 deaths, or 29 fewer, than for the previous month and 12 fewer than for the corresponding months of 1907. The annual death rate per 1,000 was 12.41. Acute intestinal diseases caused 342 deaths; consumption, 238; pneumonia, 205; heart disease, 188; violence (including suicide), 184; nephritis, 182; cancer, 124; diphtheria, 67; scarlet fever, 36; whooping cough, 7; influenza, 3, and measles, 2.

A state commission (three manufacturers, three employés, one lawyer, one sanitarian and one citizen at large) will investigate thoroughly and report bills and other methods for providing for the health, safety and comfort of employés in factories, shops, etc. Dr. Henry B. Favill, Chicago, is the physician on the commission. It has been commented that satisfactory results have not been secured in the past because of the lack of co-operation and mutual understanding between capital and labor, and that this commission gives promise of good results.

The epidemic of typhoid fever in West Pullman, and that of scarlet fever and diphtheria near West Forty-sixth Street and Ashland Avenue, Chicago, appear to be at an end. The situation at the Beale School is also said to be improving, although more slowly. As a result of these three situations the Department of Health has formulated the following conclusions: First, every case of contagious disease results from somebody's violation of the law. Second, no epidemic situation can be al-

lowed to drift; the policy of *laissez faire* will not work. Third, the mailing card will cure any epidemic situation in short order. Fourth, the clergy, physicians and good citizens generally can be depended on when they are stirred into activity.

The Department of Health of Chicago, in its *Bulletin* for November 7, has issued the following statement regarding the tuberculosis situation in Chicago: "Physicians are again advised that tuberculosis is a reportable disease. The ordinances require any physician diagnosing a case of tuberculosis to report such case to the Department of Health on a postal card furnished for that purpose. It is further required that any physician attending a case that is a suspected case of tuberculosis shall report same as a suspicious case. Parents or other legal guardians are advised that in the event of there being no attending physician the ordinances make it obligatory upon them to report any case of tuberculosis occurring in minors under their charge. Adult victims of the disease who have no physician attending them are required by law to report their case to the Department of Health. Managers, or persons of other title in charge of hotels, hospitals, homes, schools, colleges or other institutions, are required by ordinance to report all cases of tuberculosis occurring in such places as are under their charge, regardless of the report by the patient, parent or guardian. The penalty for violation, disobedience or refusal to comply with the provisions of this ordinance is a fine of from \$10 to \$200 for each offense.

"The foregoing provisions of the law apply not only to tuberculosis, but with equal force to all infectious and contagious diseases. It is of the utmost importance that every case of infectious or contagious disease be reported to the department immediately after discovery. Not more than one-half of the tuberculosis cases are now being reported. During the last sixteen months we have repeatedly requested physicians and others to report their cases. In that time 2,562 cases were reported and 4,278 deaths from this disease were recorded. The excess of deaths over reported cases was, therefore, 1,716. We should have had a record of every one of those 1,716 cases and many others who moved to other parts before dying, while they were living cases. How can the fight against this dreadful scourge be successfully carried on while half of the infection spreaders are without the necessary supervision? It is quite evident a change of policy is necessary. Hereafter the department will give special attention to the tuberculosis situation. Every means at its command will be used to secure reports of living cases. Persistent violation of the ordinances will surely lead to vigorous prosecution."

CHANGES IN LOCATION.

Dr. C. W. Heald has removed from Orien to Osceola, Iowa.

Dr. C. M. Harris of Bourbon, Ind., has located in Casey, Ill.

Dr. F. J. Corey has removed from Orien to Downers Grove, Ill.

Dr. A. N. Crouch of Assumption will locate in Carlinville, Ill.

Dr. Susanna Orton has removed from Chicago to Darlington, Wis.

Dr. Lester W. Stearns of Oak Park has removed to Kearney, Neb.

Dr. R. D. Varner of Kokomo, Ind., has removed to Ridge Farm, Ill.

Dr. J. Frank Sinclair has removed from Cisna, Wayne County, to Hume, Ill.

Dr. Elbert W. Oliver, a long-time practitioner of Wenona, has removed to Peoria.

Dr. F. R. Morgan of Towanda, McLean County, Ill., has removed to Kokomo, Ind.

Dr. J. A. Graham, Chicago, announces the removal of his residence to 1757 Arlington Place.

Dr. I. N. Smith, formerly of Toluca, Ill., but of late located at Portland, Oregon, it is announced, will soon return to Toluca.

Dr. C. E. Fogg of Wenona, it is stated, has recently been making arrangements with a view to opening an office in Toluca.

Dr. Paul S. Mabry of Varna has removed to Runnello, Iowa, and Dr. Bruce D. Hart of Prophetstown has located at Varna.

Dr. B. F. Forrest, formerly of Henry, Ill., but later of Eagle Lake, Texas, who had since located at Peoria, has again returned to Henry.

Dr. Frank T. Potts of Toluca has recently been transferred in membership from the McLean County Medical Society to that of Marshall-Putnam County.

Dr. J. P. Houston, Chicago, announces the removal of his office to 1131 Sheffield Avenue, the southwest corner of Newport Avenue; residence, 1180 Sheffield Avenue.

NEW INCORPORATION.

A license to incorporate was recently granted by Secretary of State James A. Rose to the Wastemo Remedy Co. of Springfield, with a capital of \$5,000, to manufacture and deal in merchandise. The incorporators are J. C. Walters, S. D. Moor, C. H. Walters and F. H. Sterling.

MARRIAGES.

RALPH L. LARSON, M.D., to Mrs. Mae Lee, both of Chicago, recently.

FRANK J. DEVLIN, M.D., to Miss Adele Devine, both of Newark, Oct. 21, 1908.

GEORGE W. MAHONEY, M.D., to Miss Julia Garvey, both of Chicago, Oct. 21, 1908.

PAUL OLIVER, M.D., Chicago, to Miss Elizabeth Lane of Rockford, Ill., October 28.

JOHN J. COADY, M.D., to Miss Mildred Brinkerhoff, both of Mokena, Ill., October 21.

ALBERT CARTER, M.D., to Miss Elizabeth Malcolm Stewart, both of Chicago, October 29.

GEORGE ENSMINGER, M.D., Chicago, to Miss Elizabeth Lockwood of Peru, Ind., October 8.

JOHN J. MCINTOSH, M.D., Allendale, Ill., to Miss Hester Isabel Holsen. at Robinson, Ill., October 3.

JOHN J. MCINTOSH, M.D., Allendale, Ill., to Miss Hester Isabel Holsten, at Robinson, Ill., October 3.

WILLIAM WATSON GAILEY, M.D., Bloomington, Ill., to Miss Louise Huffaker of Jacksonville, Ill., October 21.

R. K. CAMPBELL, M.D., Springfield, and Miss Louise M. Schmitz of Mascoutah. Ill., were recently married at Mascoutah.

ROBERT COLLYER BOURLAND, M.D., Rockford, Ill., to Miss Elizabeth Mary Stimson of Appleton, Wis., at Peoria, Ill., October 10.

JOSEPH AMBROSIA JERGER, M.D., and Dr. Grace Frith-Hagans married, November 17, in the rectory of St. Ambrose Church, Hyde Park, Ill.

J. C. WALTERS, M.D., and Miss Maude E. Kincaid. both of Springfield, were married in St. Louis, Mo., Nov. 10, 1908. They will reside at Springfield.

HARRISON CHARLES BLANKMEYER, M.D., Springfield, and Miss Helen Farwell Van Cleave were married in Springfield, November 19, at Christ Episcopal Church.

DEATHS.

CHARLES E. ALLEN, M.D. Rush Medical College, 1862; died at his home in Mason, Ill., June 10, aged 74.

JOHN P. HUTCHISON (years of practice, Ill., 1887); died at his home in Roodhouse, Ill., April 18, aged 80.

JOHN P. HOPKINS, M.D. Bennett Medical College, Chicago, 1893; of Oaklawn, Ill.; died at Orland, Ill., April 12, aged 46.

PLEASANT KERNAL, M.D. Knoxville (Tenn.) Medical College, 1855; died at his home in Prairie City, Ill., September 25, aged 72.

ROBERT W. GEORGE, M.D. Cincinnati Medical College, 1860; died at his home in Elgin, Ill., September 24, from paralysis, aged 76.

JOHN E. HARRIS, M.D., Louisville Medical College, 1870; died at his home in Bloomington, Ind., November 5, from nephritis, aged 61.

JOHN K. RICHEY, M.D. American Medical College (Eclectic), St. Louis, 1880; of Mendota, Ill.; died in Peru, Ill., August 14, aged 70.

JOHN B. SHORE, M.D. Barnes Medical College, St. Louis, 1895; Salem, Ill.; not in practice; died, October 5, from typhoid fever, aged 41.

THEODORE CLARENCE HAECKER, M.D. Rush Medical College, 1903; of Chicago; died at the Frances E. Willard Hospital in that city, February 6, from pneumonia, aged 36.

WILLIAM W. BICKETT, M.D. Starling Medical College, Columbus, 1864; of Columbus, Ohio; died at the home of his sister in Danville, Ill., from heart disease, October 22.

JESSE K. DUBOIS, M.D. Washington University, St. Louis, 1875; formerly of Chicago; a member of the American Medical Association; died suddenly, October 26, in Boise City, Idaho.

JOHN H. TIMKEN, M.D. Hahnemann Medical College, Chicago, 1877; died at his home in Peoria, from cerebral hemorrhage, November 1, aged 54.

ALFRED HADLEY LINDLEY, an eclectic practitioner of Los Angeles, formerly of Chicago, died at Long Beach, Cal., October 18, from cerebral hemorrhage, aged 64.

GUY MORRISON, M.D. St. Louis Medical College, 1879; of Pinckneyville, Ill.; a member of the Illinois State Medical Society; died in El Paso, Texas, March 2, aged 54.

JOHN E. GROVES, M.D. Bennett Medical College, Chicago, 1887; of Altamont, Ill.; died in a hospital in St. Louis, October 14, about two months after a surgical operation.

WILLIAM MCKNIGHT, M.D. Rush Medical College, 1862; for many years a practitioner of Granville, Ill.; died at his home in Normal, Ill., October 16, from uremia, aged 85.

OTTO E. HAERING, M.D. Rush Medical College, 1886; a member of the Illinois State Medical Society; died at his home in Bloomington, October 10, from tuberculosis, aged 47.

GEORGE WARREN REYNOLDS, M.D. Rush Medical College, Chicago, 1873; a member of the Illinois State Medical Society; died at his home in Chicago, October 4, from tuberculosis.

WILLIAM E. VARY, M.D. (examination, Ill.); examining surgeon during the Civil War; for twenty-five years a practitioner of DeWitt, Iowa; died at his home in Chicago October 28, aged 82.

EDWARD L. WATTS, M.D. Kentucky School of Medicine, Louisville, 1891; a member of the American Medical Association; was found dead, from heart disease, near his home in Triumph, Ill., October 14, aged 44.

MARX BLOCK, M.D. Chicago Medical College, 1865; assistant surgeon of the Fourteenth U. S. Infantry during the Civil War; died at his home in Chattanooga, October 17, from enlargement of the spleen, aged 76.

CHARLES ROSS PARKE, M.D. University of Pennsylvania, Philadelphia, 1847; a surgeon in the Russian Army during the Crimean War; for many years a practitioner of Bloomington, Ill., and from 1880 to 1903 chief of staff of St. Joseph's Hospital; one of the founders of the Illinois State Medical Society; died at the home of his daughter in Louisville, November 6, from cerebral hemorrhage, aged 85.

MELVIN E. KEPNER, M.D.; a graduate of the Missouri Medical College, 1899; died at his home in La Clede, Fayette County, November 2, of facial infection, aged 37 years. Dr. Kepner was a member of the American Medical Association, Illinois State and the Effingham County societies, and at the time of his death was vice-president of the Effingham County Society. He was buried by the Masonic Order.

WILLIAM T. ECKLEY, M.D. University of Iowa, 1884; professor of

anatomy in the College of Physicians and Surgeons of Keokuk, Iowa; six years later he became professor of anatomy in the dental department of Northwestern University, Chicago; since 1901 and until the time of his death he has been head professor of anatomy in the College of Physicians and Surgeons, Chicago. Dr. Eckley died of heart disease, September 21, at his country home, near Grand Haven, Mich.

JOSEPH F. DICUS, M.D., born at Moscow, Ohio, Sept. 10, 1852; graduated Rush Medical College 1880; practiced until his death at Streator; taken sick with acute appendicitis October 26; operated October 27; and died Nov. 1, 1908, at Streator, Ill.

The Streator Medical Club, at a special meeting, passed the following resolutions regarding Dr. Dicus:

It is with profound regret that we, of the Streator Medical Club, again record the passing of another of our fellow physicians, Dr. Joseph F. Dicus; therefore, be it

Resolved, That we pay this public tribute to the memory of a loyal friend, so highly esteemed for the conscientious discharge of duty both to the public and his professional brothers. Dr. Dicus, being a self-made man, was self-reliant and a most strenuous worker. His generosity was very unusual and few gave more without hope of financial reward. Though often burdened with home duties, his great sympathy and kindness to his patients and to his fellow physicians and their families in sickness was characteristic of the man as well as his devotion to his invalid wife through the years of her patient suffering. He was identified with the Streator Medical Club and with the LaSalle County, North Central, Illinois State and American Medical associations, was an ex-president of the LaSalle County and North Central Illinois Medical societies. No one gave more time to medical society work, and he was seldom absent from such meetings. His untimely death will cause a vacancy in the ranks of those who stood for the higher professional ethics; be it further

Resolved, That we attend his funeral in a body; extend our sympathy to his family, and especially to his invalid wife, and request that these resolutions be published in our city papers and THE ILLINOIS MEDICAL JOURNAL, and a copy be recorded in the minutes of the Streator Medical Club.

C. D. CHALFANT,

H. S. LESTER,

THERESA JENNINGS,

Committee.

DAVID JOSEPH DOHERTY, M.D., died October 27 in the Hospital of St. Bernard de Dieu, Chicago, after a second attack of cerebral hemorrhage, aged 58. Dr. Doherty was born in St. Louis, graduated from the Minnesota Hospital Medical College in 1887, and from the University of Freiburg, Germany, a year later. He was a member of the American Medical Association; Chicago Medical Society, of which he served as necrologist and treasurer for several years; American Oriental Society; American Anthropological Association, and Modern Language Association. He was associate professor of gynecology in the Chicago Polyclinic. During the Spanish-American War, Dr. Doherty became interested in the people and language of the Philippine Islands, and, after having mastered the Tagalog, the most important dialect, he made his first journey to the islands in 1903 to study the people, the languages and the conditions obtaining there. His report of this trip was so valuable that it was made a part of the record of the United States Senate.

His next study was a comparison of the different dialects, and resulted in the preparation of an English-Tagalog grammar and English-Tagalog vocabulary. He made a second trip to the islands in 1906, and a third voyage a year ago. His principal achievements, aside from his ethnologic and philologic researches, were the foundation of a training school for native nurses, and of a society to provide for a dispensary connected with an organization to procure pure milk for infants. Dr. Doherty had the entire confidence of the Filipinos, associated with both their radical and conservative leaders, and held at the same time most cordial relations with the United States government officials. He was beloved and respected by all with whom he came in contact because of his kind-heartedness, truthfulness and sincerity. His career may serve as an example of altruism, kindness, devotion to principle and self-denial for the welfare of others.*

* For report of memorial meeting, see p. 724.

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