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SYPHILIS

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----------C O N T E N T S.----------

---------L I S T O F I L L U S T R A T I O N S.----------

SYPHILIS.

----------PROLOGUE.---------

The subject of Syphilis has been chosen for this dissertation for various reasons,as follows:

1. It is the most interesting and complex of all diseases known to medical science; it is the most interesting because no two cases, alike in every detail, are ever found, and because it occurs in places where it is least expected; it is the most complex because its ramifications extend throughout the whole field of medicine, and because there is scarcely an affection that it may not in some way or other simulate.

2. It is in all probability the most widespread of all diseases. It occurs in all civilized countries, in all climates, in all races, and in all classes of society. No age is exempt, and all are susceptible. The virulence of the disease,however, varies in different countries; while,in certain countries, it scarcely germinates and cannot develop itself, there are places in which it attains an intensity almost equal to that which it had at the end of the fifteenth century.

3. The dangers arising from it are serious,and of grave import to both the individual and the community at large:

(a) <u>To the Individual.</u>

The risks of physical and moral degeneration are acute and ever present. A grave visceral lesion may occur in middle life and cut short a valuable life,or cripple the unfortunate patient,just at the time when he had surmounted the struggle for existence and when a peaceful eventide was within his grasp. An attack of syphilis has been the cause of the moral ruin of countless individuals; it has caused such despair that such have gone rapidly from bad to worse.

(b) <u>To the Community at Large.</u>

i. The birth-rate is lowered, as the disease is a common and prolific source of sterility and abortion.

ii. The death-rate is increased, especially by the tertiary lesions and parasyphilitic diseases. The infantile mortality is also affected, as the number of deaths amongst the children of syphilitic parents is simply appalling.

iii. Workhouse infirmaries are filled with men and women afflicted with syphilis and its satellites. The community is deprived of human beings who, otherwise, would have been useful members, and the already-overburdened rates are increased.

iv. The asylum population is increased, on account of the number of persons suffering from syphilis and its effects.

v. The present and future generations suffer, as the disease is not limited to the parent, but is transmitted also to the offspring. Our army is affected to a large extent, and many are discharged as unfit for service in consequence of this; the army and navy are thereby weakened, and the risk of defeat in time of war is consequently increased. In short, syphilis saps the vitality of the nation.

vi. The risks run by professional men and women in dealing with the disease are not slight, and the fact that they may, unconsciously, spread the disease is not to be ignored.

4. The beneficial effects that proper treatment and efficient legislation would have are so great that the public should be enlightened on these points. The disease would become less dangerous, its spread would be lessened, and the nation would ultimately benefit considerably. Legislation in France and Germany has been productive of much good, and it is possible that in time this country may awaken to its responsibility in this respect.

5. The public as a whole are grossly ignorant of the main features of the disease and the need for prolonged treatment. Religious and other superstitions so cloud the intellect that reason is in abeyance. The desirability of enlightenment of the laity in the truth is urgent.

6. The vast amount of literature on the subject is teeming with unfounded opinions and untrustworthy facts, and there is

need for the establishment of reliable data.

7. The recent advances in bacteriology and serum diagnosis have so improved out methods of dealing with the disease, and increased our knowledge of the subject, that its recognition now has become a matter of certainty where formerly it was largely hypothetical.

8. The number of cases in all stages, and the number of parasyphilitic cases seen and treated by the writer, have been so out of proportion to the number of cases of other diseases observed by him that the affection which this essay concerns has convinced him of its superior importance.

9. There are certain points in connection with the tongue, aorta, skin and history of the case that deserve more attention than they seem to have hitherto received.

-------- S Y N O N Y M S.--------

There are probably few, if any, diseases that can approach syphilis in the number and variety of its designations. When it first appeared in Europe it was an unknown disease, and a suitable name had therefore to be found for it.

Different nations saw in it a chance of revenging themselves on hostile peoples, and in this way numerous appellations were invented.

When it first appeared in Naples the Neapolitans called it "The French Disease", because they attributed it to the French army then besieging the town; the Germans and English followed suit, and called it "French Pox". In like manner the Frech called it the "Disease of Naples".

Amongst other names of similar origination are "Spanish Pox," the "Portuguese Disease", the "German Disease", the "Polish Disease", the "Disease of Christians", and the "Turkish Disease." Later on, the name "Morbus Gallicus" was applied to it generally, and this was shortened to "Morbus" by the common people.

These names, however, are now obsolete, and are only interesting in view of the fact that they give a clue to the racial animosity existing at the time.

The superstitious of the period called it after the Saint to whom they attributed its cure. Thus we have the names "St. Main," "St. Sement", and "St. Job" introduced into the nomenclature of syphilis.

The physicians of the time, to show that they were not influenced by racial prejudices or superstitions, called it by names which expressed their idea of the disease. Some said that it was like Asiatic lepra and called it "Elephantiasis"; others likened it to a cutaneous lesion described by the Arabs, and gave it the name of "Sahafati".

The study of astrology would seem to have enjoyed a considerable popularity about this time, and the influence thereof is seen in the name "Patursa Saturnine Disease", which was

applied to syphilis through the cause of the latter being referred to the combined influence of Saturn and Mars.

A still more remarkable fact was that most nations saw in this new disease a resemblance to the older disease smallpox. To distinguish the two, the French called it the "Great Pox"; this name was also given to it by the Flemish, the Germans, and the people of Picardy.

In 1496 a decree of the Parliament of Paris was issued, and in it the disease was called "Grosse Vérole".

The invention of the name "Syphilis" is said to be due to the Veronese Fracastorius (1483), who published an ode, entitled "Syphilis sive MORBUS gallicus," descriptive of the punishment of the shepherd Syphilis, by the god Apollo, in return for his worship of King Alkithous:

> "Syphilis (ut fama est) ipsa haec ad
> flumina pastor mille boves, neveas mille
> haec per pabula regis Alcithoi pascebat
> oves."

A physician in Rouen noticed that sexual intercourse was the most fruitful source of the disease, and he named it "Maladie Vénérienne"; this name was given to syphilis about the year 1556, and was ultimately replaced by the Latin equivalent "Lues Venerea".

In Scotland the name "Granggore", a corruption of the French "a la grande gorre" - the local designation of the disease in Rouen - was applied to it.

The only well-known synonyms of syphilis nowadays are "Lues Venerea", "Pox", and "Bad Disorder" - the two latter being of vulgar application.

---------D E F I N I T I O N.---------

Syphilis is an eminently contagious disease(but not infectious in the strict sense of the word), of slow evolution, progressive in its course, and due to a specific microorganism - being transmissible by either inoculation or heredity.

It is either acquired or hereditary.

In the acquired form of syphilis there are stages like those of a specific fever, but much prolonged. The first stage occurs after a period of incubation,and the lesion is at the site of inoculation; the second stage appears, after a second period of incubation, and consists of lesions of skin and mucous membranes; the third stage manifests itself after a varying interval, and the lesions may occur in any part of the body. In addition to these stages, Fournier (Les Affections Parasyphilitiques, 1894) describes affections which, having a predilection for syphilitic soil, occur years after the original infection, and which he designates "parasyphilitic".

In the congenital form of syphilis there is no first stage.

-------H I S T O R Y.-------

GENERAL CONSIDERATIONS.

The history of syphilis is one of the most interesting SUBJECTS in medical literature. Undoubted evidence of diseases of the genitals due to impure sexual intercourse come to us from every period of the world's history. Urethritis and its consequences can be traced with certainty to remote ages, and in very ancient and mediaeval times there are descriptions of sores which cannot be regarded as other than those of true Hunterian chancres.

There seems to be no doubt, then, about constitutional syphilitic affections being known to the ancients. The writers of antiquity do not give a definition which would apply to syphilis, although many cases of the disease are recorded under other names.

In 1495, when the well-known epidemic occurred, the physicians of the period recognised a new disease and had to decide whether the same was really a new affection or one which had existed previously. No definite opinion was given, and even at the present day opinions are divided. Some said that it was a new ailment which had its origin in the latter half of the fifteenth century, and others that it originated prior to that. The former school believed it to be a form of leprosy: the latter, although agreed on the antiquity of the disease, were divided amongst themselves as to its birthplace. A few of them regarded yaws as the primitive form of syphilis and pointed to Africa as its locality of origination, while others affirmed that it was born in the East Indies.

The idea that the disease was due to an inauspicious constellation was disproved when sexual intercourse was found to be the CHIEF cause of the affection. The recognition of this fact led to the belief that cohabitation of a prostitute with a leper or with animals, or cohabitation with the passionate American Indian women gave rise to the disease.

The two views that deserve consideration are those

referring to the ancient and to the recent origin of the disease. Most of the evidence is in favour of the former.

THE DOCTRINE OF ANTIQUITY.

The first to vaunt the hypothesis that syphilis was a disease known to the ancients seems to have been Sanchez; and many eminent writers, such as Hensler, Cazenave, and Rosenbaum, agreed with him.

Undoubted evidence as to the existence of venereal disease exists in ancient writings. In INDIA and CHINA, as well as in JAPAN, syphilis occurred in very early times; in China Dabry (La Médicine chez Chinois) found descriptions of a hard chancre and of tertiary lesions in the writings of the Chinese physicians. The Suçrutas - an Indian book comparable to the writings of Hippocrates and written about the year 400 - contains passages referring to a disease which can hardly be taken for anything else than syphilis. The symptoms detailed are both local and general, the penis is the point of origin of the disease, and the poison travels to other parts of the body causing affections of the ears, eyes, nose, and mouth. The religious practices of India also afford proof of a disease which caused gangrene of the genitals; this gangrene destroyed the reproductive organs and was due to sexual intercourse.

Klein, during his researches in the East, found that syphilis and its cure by mercury were known more than 900 years ago (De morbi venerei curatione in India Orientale Usitata).

The BIBLE has been searched for references to syphilis, and certain passages have been found relating to diseases that no one can unhesitatingly regard as of a syphilitic nature.

The ROMAN and GREEK physicians mention affections of the genital organs at an early date, but few passages relating definitely to syphilis have been found. The scantiness of the written information on the subject in these times is probably due to the facts that there was a sense of modesty, especially amongst the women, regarding diseases of the genitals, that patients did not confide in their medical advisers, and that the physicians of the period avoided such cases as ungenteel.

Amongst the Romans there was a disease, "Morbus Campanus", peculiar to the debauchées, which is not devoid of analogy with syphilis.

Having thus seen that the ancient inhabitants of Europe and Asia recognised syphilis, it would be interesting to examine the early literature of AMERICA and see if the affection was known there.

The Abbe Bratteur de Bourbourg, in his history (Lancereaux on "Syphilis", Vol.i.), says that he found documents in the languages of the tribes of the Anahuac which proved to him the presence of syphilis in America before the arrival of Columbus.

Prescott and Irving (New York Jour. of Med., March, 1844) affirm that Europeans gave the disease to America, but they do not prove that it did not exist in America before the arrival of Europeans.

A search of the literature of the MIDDLE AGES must now be made. As in antiquity, so in this period the references to syphilis are scanty and fragmentary. This may be due to the fact that at this time "leprosy" was a term applied to a number of diseases, and syphilis, being one of them, is confounded with others. Physicians recognised and described ulcers of the genitals; Guillaume de Salicet, in 1270, described what were undoubtedly hard and soft chancres resulting from sexual intercourse. Heuber and Sprengel agreed that syphilis was a degenerated form of leprosy, and the decline of elephantiasis in Europe at the time of the epidemic of syphilis gave colour to this theory.

Thus it will be seen that syphilis was known to, and described by, the physicians of the Old World long before 1495.

The next period to be considered is the great epidemic of the latter half of the FIFTEENTH CENTURY. This malignant and widespread outbreak is a remarkable episode in the history of syphilis, and the strangeness of it explains the enormous interest the occurrence excited at the time - not only in the professional, but alsoin the lay mind. The physicians and historians of the time almost all agree as to the date and place of its birth. According to various authors, it occurred

before 1495; Fulgosi says it occurred in 1492, Pomarus records it in Saxony in 1493, while Sprengel declares that it occurred in Auvergne in 1493. At any rate, there seems to be no doubt that it existed in Europe before 1495.

The disease, however, reached its maximum when Charles VIII. of France was besieging Naples in 1495; it found circumstances favourable for its development, and soon attained a virulence hitherto unheard of. The number of people affected was enormous, while the deaths were relatively few and the cures practically nil. The remarkable virulence was no doubt influenced by the excessive heat at the time, the corruption of morals then existing, the want of a cure, and the prevailing war.

Fracastorius (De morbis contagiosis. Venetiis, 1546, Lib. ii., Cap. Q.) gives a most interesting and graphic description of this remarkable epidemic. According to him, in the case of certain individuals, "the disease commenced without contagion; in others, and these were the greater number, it was transmitted by contagion. Not every kind of contact sufficed for producing it; it required that two bodies should become heated together, as occurs in the act of coition. And it was chiefly by coition that the greater number became infected. However, a considerable number of children contracted the disease by suckling their diseased mothers or nurses. The disease was not communicable at a distance; it did not show itself immediately, but sometimes at the end of one, two, or even four months; certain signs, however, announced that the disease was already in the germ.

"Those affected were sad, weary, and cast-down; they were pale; most of them had sores on the genital organs, ulcers similar to those which were wont to develop themselves on those organs after coition, and which are called caries, but of a very different nature; they were obstinate. When they were cured in one place they appeared in another, and the treatment had to be recommenced. Afterwards, pustules arose on the skin, covered with a crust; in some they appeared on the head, which was the most frequent place; in others they appeared elsewhere. At first they were small; afterwards they increased to the size of an acorn, which they resembled in shape, their appearance being similar to the crusta lactea of children. In some cases they were large and

moist; in some livid; in others whitish and rather pale; in others hard and reddish. They always broke in a few days, and constantly discharged an incredible quantity of stinking matter as soon as open; they were so many true phagedaenic ulcers, which destroyed not only the flesh but even the bones. Those attacked in the upper part of the body suffered from malignant affections which ate away the palate, sometimes the fauces, sometimes the larynx, sometimes the tonsils, sometimes the nose, others all the genital organs. Many had gummy tumours on the limbs, which disfigured them, and were often the size of an egg or of a small loaf; when they broke, a kind of white mucilaginous fluid flowed from them. They attacked chiefly the arms and legs; sometimes they remained callous until death.

"But, as if all this were not sufficient, there ensued, moreover, severe pains in the limbs, often at the same time with the pustules; sometimes before, sometimes after them. These pains, which were persistent and unbearable, were chiefly felt in the night and were seated in the limbs themselves, and in the nerves rather than in the joints; some, however, had pustules without the pains, others pains without the pustules; most had both pustules and pains. However, all the limbs were in a languid condition; the patients were wan and emaciated, without appetite, sleepless, always melancholy and ill-humoured, and anxious to remain in bed. Their faces and legs swelled, and a slow fever sometimes upervened, but rarely. Some suffered pains in the head, which were persistent, and did not yield to any remedy. If blood was drawn, it was found to be pure, and sometimes mucous; the urine was red and thick; by this sign alone, supervening in the absence of fever, the disease might be recognised; the stools were liquid and mucous.

"Such were the symptoms of the disease at its commencement; but I speak of a past time, for now, although the disease is still prevalent, nevertheless it appears to differ from what it was then. We have seen, during the last twenty years, fewer pustules and more gummy tumours, which is the reverse of what was observed in the first years. The pustules, when they appear, are drier, and the pains, when they supervene, more severe. Within about six years the disease has again notably changed; we now see pustules

in but very few patients;scarcely any pains,or much slighter ones,but many gummy tumours.

"A circumstance which has astonished everybody is the falling off of the hair of the head and other parts of the body, which produces a ridiculous appearance;some have no beard,some no eyebrows,some are bald.At first these results were attributed to the remedies,especially to mercury.Now it is still worse; in many the teeth became loose,and in many they even fall out."

This epidemic must certainly have been one of syphilis; still,some have emphatically denied its specific nature,saying that it was a combination of such diseases as typhus (Cazenave), glanders, or farcy (Ricord),their opinion, however,being refuted by the occurrence of similar outbreaks since the fifteenth century.

The duration of the malignant character of the disease is uncertain,but most agree that it lost its virulence about the year 1640.It was certainly the worst epidemic that had ever occurred.

Italy was not the only country affected;it spread to other parts,and in 1497 it was prevalent in SCOTLAND. On April 21st of that year, the Town Council of ABERDEEN issued the following order: "The said day it was stated and ordanit by the Aldermen and Consale for the eschewin of the infirmity cumm out of France and strange partis, that licht wemen be chargit and ordanit to desist fra thar vices and syne of venerie and all thar buthes and houses skalit,and thai to pass and wirk thar sustentacioun,under the payne of ane key of þet yrne on thair cheekis and banysene of the toun" (Alex.Duncan.- "Memorials of the Faculty of Physicians and Surgeons", Glasgow,1896).The earliest notice of the disease in GLASGOW occurs in the accounts of the Lord High Treasurer about the year 1497-98.

Since the great epidemic of 1495 there have been various epidemics of a less severe character.

In 1578 the town of BRUNN was afflicted with the disease, which had alarming symptoms but was not very fatal.The cause of it was attributed to the public baths of the town.The inhabitants were accustomed to bathe and to be cupped on a certain day,and

on that day of this year those who had so bathed were afflicted with the disease a month later.

In Scotland there appeared a disease called "SIBBENS" about the year 1650. The word "sibbens" is derived from the Celtic "swin", meaning a wild raspberry. The disease was said to have been brought into Scotland by Cromwell's troops, and to be confined to the west at first, but in 1694 it spread to the Highlands. It was described as an hereditary, contagious disease communicated by means of drinking-vessels or towels, by suckling, by sleeping with the affected person, or by coition. Between 1825 and 1840 sixty cases were admitted to Glasgow Infirmary, but there is no further record of the disease. This, in all probability, was syphilis.

In certain districts of Europe - NORWAY, ICELAND, LITHUANIA, FINLAND, SERVIA, and BULGARIA - outbreaks occurred between 1720 and 1820. In 1814 there was an epidemic amongst the British troops in SPAIN.

From the sixteenth to the NINETEENTH CENTURY no advances were made in our knowledge of the disease; and until the time of Philip Ricord - the beginning of the second half of the nineteenth century - syphilis, soft sore, and gonorrhoea were classed as one and the same disease. He proved that syphilis was a distinct entity and had three stages.

Virchow, in his "Essay on the Nature of Constitutional Syphilis", laid the foundation of the modern views on this disease.

In 1879 Neisser discovered the gonococcus, and so established another separate venereal disease.

It now only remained to be proved that chancroid was due to a specific microorganism, in order to have a triad of venereal disease. This was a matter of time, and in 1889-92 Ducrey and Unna discovered the bacillus of soft sore.

After many unsuccessful attempts, the cause of syphilis was discovered by the brilliant researches, in 1903-06, of Hoffmann and Schaudinn and, in 1903, of Metchnikoff.

THE DOCTRINE OF MODERNITY.

The advocates of the theory of the recent origin of syphilis declare that it was an affection quite unknown to the Old World until the crew of the ships of Columbus brought it from Central America and the island of Hayti, and that it existed in America long before the fifteenth century. They assert that there is no early record of syphilis, although there is of chancroid and gonorrhoea. This view was held by Jean Astruc, the Spanish army surgeon Montejo, Virchow, Unna, and Schopenhauer.

At the present time the great advocate of this theory is Bloch (Sexual Life of Our Times), who says that it is not so old as sexual intercourse. He denies the truth of the phrase, "Ubi Venus ibi Syphilis", ans says it is a relic of the superstitious days when syphilis was regarded as a mark of the Divine wrath. In 1906 he read a paper before the Anthropological Scoiety of Paris, in which he denied that the minutest trace of syphilitic remains could be found in prehistoric times or in the middle ages.

Spain was first visited by the disease, and from thence it spread to the army of King Charles VIII. of France, who was setting out to besiege Naples. The affection became epidemic there, and after the disbandment of the army it spread throughout Europe. The Portuguese traders then carried it to India, China, and Japan.

The remainder of the history is detailed above.

-------P A T H O L O G Y.-------

GENERAL CONSIDERATIONS.

All syphilitic lesions - primary, secondary, and tertiary - consist essentially of pathological processes in the blood-vessels and in the tissues surrounding them; they are of a chronic inflammatory nature, but whether they are excited by the microorganisms directly or by their toxins is unknown. The changes are in the endothelium of the smaller blood and lymph-vessels, and there is a perivascular cell proliferation, with local overgrowth of connective tissue. Most cellular infiltrations tend to become organized; but this one is retrogressive. In the primary and secondary stages of the disease the granuloma, as this perivascular infiltration is called, undergoes resolution; but in the tertiary stage it develops into a low form of fibrous tissue. All three stages - vascular, perivascular cell infiltration, and retrogression - occur in the chancre and in secondary and tertiary lesions. The vascular lesions consist of endoperiarteritis and endoperiphlebitis, and the capillaries are dilated and surrounded by exuded cells.

The syphilitic granuloma consists of round cells, epithelioid cells, and giant cells; the round cells include polynuclear leucocytes, lymphocytes, embryonic connective tissue cells, and plasma cells. The plasma cells are most numerous, larger than leucocytes, oval or polyhedral, without processes, easily stained, and granular; their origin is disputed.

Unna regards them as being derived from the connective tissue cells; but most authorities agree that they are derived from ~~the white blood corpuscles~~.

Epithelioid cells are supposed to be derived from degenerating plasmatic cells, while giant cells are formed by the coalescence of cells or division of nuclei. The vascular changes are as described above, and lead to obliteration of the vessels and ischaemia. The cellular infiltration leads to diffuse interstitial fibrosis or gummata, or both.

In the chancre, vascular changes and perivascular

infiltration predominate; in secondary lesions, these involve numerous areas of limited extent. The characteristic lesion in the later stages is known as a "gumma" - a word derived from the poem of Fracastorius - which consists of the usual elements, but is followed by changes in the part which it invades.

CHANCRE.

(Hard Chancre; Hunterian Chancre; Indurated Chancre; Syphilitic Chancre; Primary Lesion.)

The initial lesion of syphilis occurs at the site of inoculation, which may be anywhere. Most authorities agree that an abrasion or a crack is essential at the site of inoculation; but Hutchinson ("Syphilis") says that an abrasion is not necessary, but only favourable. This view, however, is not acceptable. Given the contact of a syphilitic lesion with an abrasion - however minute - the deed is done; the abrasion need only be microscopic, the lesion unsuspected, the contact momentary.

The occurrence of the lesion at any given point is due to the fact that the organism enters at that point, acts there first, and is then spread by the lymphatics to the nearest set of lymphatic glands, which enlarge and become indurated.

The chancre does not occur immediately after the introduction of the poison, but after a period of incubation which varies from days to weeks in its duration. The length of the INCUBATION period varies in different individuals; but, regarding it as the time intervening between the introduction of the poison and the appearance of the first symptom, it averages from twenty-one to twenty-eight days.

The doctrine of incubation was first developed and maintained by Cazenave (Traité des syphilides), who states; "The primary symptom is not the first mode of action of syphilis but really only the first phenomenal expression of the infection, and when it manifests itself the disease has already commenced".

This view is now held by all syphilographers; but Hunter and Ricord believed that the chancre was a local lesion which only infected the general economy afterwards; if this view were the correct one, the disease could be cut short by early

drastic measures; but, as is well known, such is not the case. Everyone can produce clinical evidence of an incubation period; and, since transmission of the disease to lower animals is now an accomplished fact, experimental evidence can also be produced.

At the end of the induration period a dry, circular, slightly raised, reddish SPOT appears at the site of inoculation. This spot is primarily a neoplasm, and is of the nature of a protuberance. It increases slowly in size, but it never becomes larger and may remain dry or become eroded. The dry unbroken chancre is the pathological elementary lesion, and is known as the "papular chancre" on skin or mucous membrane, and as the "dry chancre" on the skin only.

The changes, both in the unbroken and in the ulcerated chancre, are seen in the numerous small capillaries: the endothelium is swollen, the lumen is narrowed, and there is perivascular cell-infiltration. The cells consist of leucocytes, connective tissue cells, and plasma cells. The last are very conspicuous, and are supposed to be derived from the leucocytes. The cellular infiltration occurs also in the adjacent healthy tissue. Most of the plasma cells are absorbed, but some are converted into connective tissue when induration occurs, and when the lesion heals.

The eroded chancre is more common than the unbroken and is the typical clinical lesion of the disease; it is the "Hunterian chancre" - so called because Hunter, in his "Treatise on Venereal Diseases", first described it. "The chancre of primary venereal infection", he says, "is essentially an induration which afterwards passes into ulceration".

This chancre first appears as an indurated nodule, the surface of which soon ulcerates. Its surface is smooth, the edges are raised and rounded, the induration is slight or extensive, and there is a slight amount of secretion; at first it may be elevated, but later it is excavated and the floor is grayish. The colour is dull-red, but dark-red later, resembling beefsteak - hence the name "beefsteak chancre" sometimes applied to it. The induration is usually slight, and, when felt, resembles parchment; but it may be extensive, and like cartilage to the touch. The discharge is serous or seropurulent; if there has been secondary

pyogenic infection. In about six weeks the edges collapse, granulations appear, cicatrization occurs, and a scar is left which may eventually disappear.

The microscopic appearances are the same as those of the unbroken chancre, with the exception of the necrotic surface which is present here. The spironema pallida may be found.

The eroded chancre is called the "elevated", "nodular", or "annular chancre."

DRY PAPULE.

The dry scaling papule is a rare form of the primary lesion. A sharply-defined papule appears at the site of inoculation at the end of the incubation period. It is dark in colour, rounded or oval in shape, and elastic in consistence; it does not ulcerate, but increases in circumference, with a sharply-defined border and a scaly centre, and leaves no cicatrix.

SILVERY PAPULE.

The silvery papule is another rare form of chancre. It looks as if the spot had been touched with pure carbolic acid or with nitrate of silver. It increases slowly, does not ulcerate, and gradually disappears.

INDURATED OEDEMA.

This is an exaggeration of the primary lesion, and is due to a slow and painless swelling of the part involved until the affected part is uniformly thickened and indurated. It is comparatively rare and may conceal any slight sore, ulcer, or erosion when it occurs. The syphilitic nature of the oedema is, however, evident under the microscope.

MIXED SORE.

This is the name applied to hard and soft chancres when they appear at the same time or are incubated simultaneously. It is the result of a double contagion, and it may arise in three ways:

i. The chancroid may appear, flourish, and be cured before the chancre appears.

ii. Chancroid may overlap chancre.

iii. Chancre may be followed by chancroid.

This is by no means a rare lesion, and the two chancres

usually exist at the same time.The usual course of events is that the soft chancre runs its usual course as an ulcer,and induration appears causing the course to become that of a chancre.When the soft sore is assuming syphilitic features,the floor becomes less deep,the edges are not undermined,the discharge becomes thinner,and induration appears.

It should be noted that any hard chancre may become gangrenous,may slough,or may become phagedaenic in debilitated and unclean patients,and that the appearances of a chancre depend on its site and presence or absence of secondary infection.

All chancres, no matter where they are situated - have the same pathological foundation;and any difference observed is due to the situation only.

The enlargement of the lymphatic glands,which occurs a few weeks after the appearance of the chancre,is really a part of the first stage. The glands slowly enlarge,one after another, and remain distinct from each other;they are freely movable and not adherent to the skin.Secondary pyogenic infection may occur and result in an abscess.The condition is an adenitis pure and simple,and no periadenitis occurs.The characteristic of this lesion is the slow rate of resolution,which lasts many weeks (see adenitis later).

SECONDARY LESIONS.

The lesions of secondary syphilis,like those of the other stages, are of a chronic inflammatory nature,and originate in the changes in the small blood-vessels,which give rise to perivascular infiltration of cells.This cell infiltration varies in degree,and according to the degree,the character of the lesion varies.In the erythema the infiltration is almost negligible, while in the papule and its modifications it reaches the maximum. The papule is the foundation of all the secondary lesions of the skin and mucous membranes and all the syphilides - a name given to secondary and tertiary lesions of the skin and mucous membrane - in secondary syphilis are merely modifications of the pathological processes which find expression in the papule. Secondary changes in the epidermis of the papule cause various modifications of the eruption.One of the manifestations of

secondary syphilis is the production of warts, i.e., hypertrophied papillae, with or without cell proliferation.

The majority of the secondary lesions are syphilides, but bones, joints, and other structures may be affected as well. The blood is the means by which the virus is spread, and on that account the lesions are usually symmetrical; the lesions are not in the habit of leaving cicatrices or organic changes in the tissues they affect, and in this respect they differ from those of the next stage.

Syphilides.

SYPHILIDES OF SKIN.

Roseola (Erythematous Syphilide).

This is nearly always the first eruption of secondary syphilis, and appears on the chest, trunk, and flexor aspects of the limbs. It consists of irregular, rose-red spots, which may be discrete or confluent; it is not elevated above the level of the skin, and usually becomes darker in the later stages.

There is congestion, due to the dilated blood-vessels, and the cell infiltration is at a minimum. The condition represents the first stage of the perivascular cell infiltration and endarteritis, which constitute the fundamental pathology of all syphilitic lesions, and may be described pathologically as an aborted papule.

PIGMENTARY SYPHILIDE.

This is not a common condition, and when it occurs it affects the sides and back of the neck chiefly. Women are more subject to it than men, and the condition has been called the "collar of Venus". It consists of rounded non-prominent spots, with irregular edges, and of a variable colour; it may occur singly or in groups. The exact nature of the condition is a cellular infiltration deep in the dermis, but the cause is unknown. The following theories as to its origin have been advanced to explain it:

(i) Fournier regards it as a primary pigmentation of a parasyphilitic nature, and holds that it is not a secondary affection.

(ii) Balzer and other (Brourardel and Gilbert.- Traité de Medicine, 1906) consider it as due to a peculiar evolution of the

eruptive elements of the secondary period (roseola or papule), and that these elements, which are sometimes recognizable at its first appearance, are necessary for its development. According to this view, an extra quantity of pigment is produced, which extends beyond the limits of the eruptive elements; the latter become decolourized in the centre by absorption of the pigment, but this persists at the periphery and forms the meshes of the pigmentary reticulum.

(iii) De Maieff has found obliterating endarteritis of the vessels in the deeper layers of the skin. These vascular lesions may explain extensive pigmentation, by extravasation of blood-pigment accompanying the perivascular infiltration of the tissues of the skin.

PAPULAR SYPHILIDE.

This is the fundamental type of the syphilide, and is a protuberance of greater or less size, solid, dry, and terminating in resolution. It may be general or scattered about the body in patches; each papule varies in size, but is seldom larger than a pea; the colour is usually pink at first and then dark; and its course is chronic.

It consists of a circumscribed inflammation of the superficial dermis and papillae, with an exudation commencing in the latter. The vessels are affected in the usual way, and the perivascular cell-infiltration is in the form of a nodule, and renders it prominent and dense; the cellular infiltration is not so deep in the dermis as that of the pigmentary syphilide, but it may occur under the dermis and form nodes, as the result of thrombophlebitis.

There are two varieties of the papule, the flat and the miliary. The former consists of dull spots, which are smooth at first, but have a scaly top, due to exfoliation of the dermis, later. The scale can be raised easily and a dry surface is seen under it. The spots are usually discrete, but may be aggregated in the neighbourhood of sebaceous glands. It occurs commonly at the junction of the forehead and scalp, and in that position is known as the "corona Veneris". The scaly top usually disappears and leaves a white areola around the papule. In this condition the vascular changes involve relatively wide areas, and the

cell-infiltration extends some distance into the surrounding tissue. In the miliary papular rash the papules are conical, and of a bright tint at first, but they soon become dark. It is not a common variety. The eruption is connected with the hair follicles and the cellular infiltration, and the vascular changes are most marked around the sebaceous and sudoriparous glands.

SQUAMOUS SYPHILIDE.

This eruption may be local, when it is scaly, or general, when it is patchy, raised, scaly, and copper-coloured. The essential change is a proliferation and desquamation of the epidermis; the cellular infiltration is not so extensive as to cause exfoliation of the horny layer (see later under this heading). (p. 86).

CONDYLOMA.

This is merely a variety of the papule which is modified by its surroundings, and is really a papulo-erosive syphilide. It is the homologue of the mucous patch on mucous membranes, and is characteristic of syphilis. The differences between this, the mucous patch, and the papule are due to the different epithelium on which they occur.

Condylomata occur where the skin is moist, and on this account the epidermis becomes sodden and exudative and liable to erosion and secondary ulceration. They are most common in the perineum, the vulva, and the scrotum, but also occur in the axilla and groin, between the toes, and where adjacent folds of skin are in contact.

They are flat, sessile, hypertrophic papules of varying size, but usually about half an inch in diameter; the colour is pink or grayish-white, according to the amount of epithelium present. The infiltrated papillae become branched and grow into irregularly-shaped masses. Microscopic examination reveals hypertrophied papillae, the peculiar cell-infiltration, and the vascular changes of syphilis (see later under this heading). (p. 88).

VESICULAR SYPHILIDE.

This is a modification of the papule, and is due to an exudation of serum raising the epidermis. The vesicle sometimes ruptures and is replaced by a crust. It is but a step on the

way to pustular syphilide(see later under this heading).

PUSTULAR SYYPHILIDE.

In this case the syphilitic process is complicated by the presence of ~~pa~~py~~e~~ogenic microorganisms, causing pustules with subsequent ulceration. The syphilitic process is the chief agent, and the pustular element always has a papular base preceding the ~~in~~ul~~e~~ceration. The pustule soon breaks down and an oval or round and shallow, crusted ulcer results. The mildest form is what is known as "syphilitic impetigo"; the ulcer is shallow and the crusts are brownish, friable, and easily removed. A further degree constitutes "syphilitic echthyma", which is a classical name for a staphylococcic infection with a flat, irregular scab having an areola; on removing the crusts a punched-out ulcer or a depression is seen, according to the age of the spot. A still further degree forms "rupia". This is characteristic of syphilis, and is composed of large circular ulcers having greenish-brown scabs, which become piled up in conical limpet-shell form as the ulcer increases in extent. The crusts are circular and stratified; the ulcer varies in depth, and leaves a round permanent cicatrix with a pigmentary areola.

The pustular syphilide is a collection of pus cells and necrotic tissue accompanying the usual syphilitic changes.

PAPULO-ULCERATIVE SYPHILIDE.

The process here is one of rapid softening and ulceration caused by the great virulence of the syphilitic poison. The ulcers secrete a scanty discharge, which dries up in blackish-brown crusts.

SYPHILIDES OF MUCOUS MEMBRANES.

MUCOUS PATCHES.

These are the most common and contagious secondary lesions; they may or may not be preceded by a roseola. A mucous patch is the homologue of the papulo-erosive syphilide (condyloma) of the skin, and differs from it only on account of its situation. The tonsil is the usual site, but they occur frequently on the tongue and lips, and opposite any point of irritation. Their appearance is early, and they are peculiar to syphilis.

On the tonsil they first appear as small grayish spots,

varying in size, on the mucous membrane. They may be few or multiple, and may may unite and cover a large area, so that the throat appears as if it had been painted with nitrate of silver. The borders are circumscribed, the surface is moist, and the shape varies. Resolution is the usual termination whether ulceration occurs or not. The larynx is sometimes affected when mucous patches occur in the buccal cavity.

On the tongue they may appear at the back, the sides, or the tip. When at the back the papillae first, then the mucous patch will be observed in formation; when they are elevated to some extent some call them condylomata, on account of the warty appearance. At the sides and tip mucous patches become eroded and may form actual ulcers. No matter where the location may be be, they either heal, leaving smooth glazed surfaces, or break down and form ulcers, which later become fissures.

The microscopical appearances are cellular infiltration and arteritis.

ROSEOLA.

This affection of the throat occurs at the same time as roseola of the skin, it lasts longer than cutaneous roseola, and is the first and last sign of secondary throat trouble. It is darker in colour than a non-syphilitic erythema, and is sharply-defined. It may spread to the whole pharynx and hard palate, and has at times affected the trachea, bronchi, and larynx.

The lesions of mucous membranes are the same as those of the skin, except that the situation is different.

ALOPECIA.

This is not peculiar to syphilis, but occurs in other diseases. Typical syphilitic alopecia looks as if the hair had been badly cut over irregularly-shaped patches; the scalp is dry and the hair dry and lustreless. The affection may be general or limited. The cause is unknown; some say it is due to an eruption on the scalp, while others attribute it to anaemia.

Sabouraud (Atlas of Dermatology) says it is due to a toxin causing atrophy of the papillae and death of the hair (see later under this heading). (p.92.)

ONYCHIA AND PARONYCHIA.

The simplest affection is a papule in the matrix,

which arrests the process of keratization. This results in denuding the nail-bed, and causes partial or total detachment.

Onychia may be atrophic - nail thin, ragged, and brittle - or hypertrophic - nail thickened, broken, and wrinkled.

Paronychia may be dry, inflammatory, or ulcerative, according to the severity of the affection (see later under this heading) (p 93)

Effects on Other Tissues and Organs.

The HEART, LUNGS, PLEURAE, MUSCLES, JOINTS, CIRCULATORY SYSTEM, and DIGESTIVE SYSTEM rarely present any pathological changes in secondary syphilis.

The BLOOD-VESSELS present periarteritis and periphlebitis, as well as endothelial changes.

The LYMPHATICS may be affected with simple or plastic lymphangitis; the LYMPHATIC GLANDS are enlarged, the parenchyma is congested, there is cellular infiltration and endo-periarteritis.

The KIDNEY sometimes shows a nephritis, which may have vascular and epithelial changes or interstitial changes predominating.

BLOOD.

The usual changes in the blood are diminution in the number of red corpuscles and in the amount of haemoglobin, increase in the number of leucocytes, diminution in chlorides, and lessened alkalinity. The red corpuscles show poikilocytosis, and the increase in the number of leucocytes is due to the increase of lymphocytes and eosinophiles. The blood, however, may present the characteristics of that found in chlorosis and pernicious anaemia, or the leucocytosis may be so great as to cause leukaemia. The spironema pallida has been found in the blood of syphilitic patients.

EYE.

The secondary syphilitic affections of the eye are common and very serious.

Interstitial keratitis is rare in acquired syphilis, but common in hereditary as in scleritis. The most frequent eye disease in acquired syphilis is iritis.

Iritis.

The pericorneal vessels are injected; there is an exudation on and into the iris, which is congested, thickened, and

dull;the anterior chamber contains an exudate,which causes a spotted appearance.In some cases the characteristic pinhead salmon nodules appear at the edge of the pupil.

The iris is irregular in outline and sluggish in action. The condition may subside,but synechiae or cyclitis may follow. This is plastic iritis.

In serous iritis there is no exudate of a plastic nature. The intraocular tension is increased,and may lead to glaucoma.

There is also a papular iritis,in which small papules, similar to those of the cutaneous syphilide, appear in the anterior surface of the iris.

The microscopical changes in iritis consist of a cellular infiltration with formation of new vessels,and an endarteritis obliterans.

Choroiditis and Retinitis.

Nodules,of the nature of a cellular infiltration,occur at the periphery,and form yellow circles surrounded by a pigmented area; they disappear and leave an excavated denuded spot. The blood-vessels of the choroid and retina are congested and infiltrated,and the retina is hazy and discoloured,on account of the hyperaemia and oedema; the disc is swollen,and its margins are blurred on account of the inflammatory oedema arising from an obstruction of the circulation. This condition is relatively frequent,and may attack both eyes.

Papillitis.

This condition is not common.The papilla is prominent and overhangs the retina; the veins are large and tortuous, while the arteries are indistinct.It may be unilateral or bilateral.

The demarcation between secondary and tertiary lesions of the eye is a matter of degree to a great extent, and what are not discussed at present will receive due consideration under Tertiary Lesions.

EAR.

Pathological lesions of the ear are syphilides,which may be erythema,papules,or mucous patches. The external ear and the Eustachian tube are the usual sites of secondary

lesions.

TERTIARY LESIONS.

GENERAL CONSIDERATIONS.

Syphilis in the third stage is a disease of the tissues, and not of the blood; on that account the lesions tend to be irregular in their distribution and asymmetrical. Tertiary syphilitic lesions are not restricted to a particular site; they occur in all tissues - the internal organs are liable to be affected as much as the integument, and they exist everywhere. Each lesion may be extensive and disseminated, or limited and localized; the changes do not consist of a simple hyperaemia and an exudation - they are more profound and are of a chronic inflammatory nature.

The onset is insidious, the evolution slow, and the changes produced permanent; there is no return to the normal as in the primary and secondary stages of the disease, the part affected being changed in character or actually destroyed.

The contagiousness of tertiary syphilitic lesions is not yet settled; Schaudinn has described small bodies, supposed to be a resting-stage of the spironema pallida, in tertiary lesions, and it would be wise to reserve judgment until the life history of the microorganism has been fully worked out. The question of heredity with regard to tertiary lesions is also unsettled, and the elucidation of the contagiosity may shed light on this also.

The variety of pathological lesions, when viewed from a histological point of view, is not numerous; the clinical lesions, however, are as numerous and varied as the diseases the flesh is heir to. Gummata and arteritis are the foundations of the pathology of tertiary syphilis; they are the perivascular cell-infiltration and the arteritis of the primary and secondary stages of the disease in their highest form; the gumma is the acme of the cell-infiltration, and the vascular changes the climax of the arteritis.

The gumma is as characteristic of tertiary syphilis as the condyloma is of the secondary stage of the disease. It begins as a granuloma, varying in size from an almost microscopic body to a large tumour, and may be circumscribed or diffuse; at first it

is firm and hard in consistence, but later it becomes softer. It is always derived from connective tissue, and consists of a delicate intercellular stroma filled with small round cells, and provided with newly-formed blood-vessels; some of the cells degenerate and become epithelioid and giant cells. A transverse section in the early stages presents a homogeneous grayish-white appearance; at a later stage there is a caseous centre held together with connective tissue with a translucent periphery. The caseous centre is the result of the central disintegration which occurs sooner or later.

Gummata of the skin and mucous membranes become soft, break down, and discharge externally, leaving an ulcer which heals and leaves a cicatrix. The ulcer is characteristic, and it will be described under Tertiary Syphilides.

Gummata of the internal organs have no outlet, and the granuloma is surrounded by a dense envelope of connective tissue, which is surrounded and infiltrated with plasma cells or absorbed, leaving a scar.

Diffuse gummata are relatively large and present no central degeneration; they heal by transformation into cicatricial tissue.

Microscopical examination shows that the gumma is composed of small round cells, fibroblasts, fibrous tissue, endo-periarteritis, and a few epithelioid and giant cells.

TERTIARY SYPHILIDES.

The syphilitic tubercle is to tertiary syphilides what the papule is to secondary syphilides. The papule is an exudation upon the skin and leaves no scar, while the tubercle is an exudation in the skin and leaves a scar.

Morrow (System) defines a tubercle as a gumma of the skin, and a gumma as a deep-seated tubercle.

Gummatous syphilides are limited in number, are irregular and asymmetrical in distribution, and remain indefinitely; they are constituted by a different degree of the same pathological process as secondary syphilides. Clinically, there is no absolute distinction between the secondary and tertiary syphilides, as the latter may appear during the arbitrary second stage.

The perivascular cell-infiltration of the tertiary syphilide forms an inflammatory neoplasm affecting nearly the whole of the dermis;this neoplasm has a tendency to soften and ulcerate.

The vascular changes consist of a well-marked endo-periarteritis,and the cellular infiltration is made up of round, epithelioid,and giant cells.Elastic tissue is replaced by fibrous tissue,and the cellular elements are replaced by connective tissue.

SIMPLE GUMMATOUS SYPHILIDE.

This variety is composed of hard,solid tumours of a red,mottled or coppery colour of variable size.It may occur as a general eruption or be localized in groups,and may be discrete or confluent.There is no ulceration,and the extending margin is in the form of a circle or segment of a circle.Resolution with formation of a scar is the usual termination(see under this heading later). (p.89).

ULCERATIVE GUMMATOUS SYPHILIDE.

This is merely the ulceration of a simple summatous syphilide,and includes pustular and crusted syphilides.There may be one gumma or many,and they may be discrete or confluent. The condition is chronic,and is not accompanied by lymphatic glandular enlargement.Recurrence is a common feature.

The shape of the resulting ulcer varies;its edges are hard,infiltrated,adherent,and sharply-defined;the base is depressed and covered with a creamy slough,and crusts form;it presents a punched-out appearance which is characteristic of syphilis.

Echthyma and rupia are two varieties of this syphilide.In echthyma pustules precede the ulceration;but they are evanescent,and the typical punched-out ulcer soon appears.The crust is thick and greenish in colour,and the resulting cicatrix is rounded. Rupia is rare and develops in the same way as secondary rupia.

SYPHILITIC ELEPHANTIASIS.

An hyperplastic infiltration of the skin and subcutaneous tissue sometimes accompanies gummatous syphilides.The

labia, lips, ear, nose, and limbs are usually affected.

Fournier called it an hypertrophic syphiloma when it occurred on the lips.

The present writer has come across three cases of syphilitic elephantiasis lately:

The FIRST CASE illustrates the condition as it affects the limb.

M. H..., aged 66, was admitted to the Leeds Union Infirmary on September 15, 1908, complaining of inability to walk about with ease on account of swelling of the right leg. The swelling commenced three months before admission and gradually increased in size. About a month after the swelling commenced the leg "broke out in one or two places". The leg was quite normal previous to the commencement of the swelling, except for a few spots, and there never has occurred any diminution in size since the beginning. When asked to account for the condition, he at once said it was due to syphilis. There was no history of injury or of previous disease of the leg.

Family History.- The patient was a married man and had three children living. Alcohol was not a passion of his, but he was a moderate drinker. When in India, 33 years ago, he had ague and syphilis.

Present Condition.- Respiratory, circulatory, and alimentary systems showed no gross lesions. The right leg and foot were very large, and the skin over the instep was thick and in folds. The swelling did not pit on pressure and was not painful. The foot had four or five punched-out discharging ulcers. Both tibiae were thickened, and numerous syphilitic scars were present all over the body. The knee-jerks were active and not too easily obtained. The enlargement of the limb was chiefly from the middle of the leg to the toes, and the lower half of the right tibia was very much thickened. The measurements were as follows:

	Right.	Left.
Circumference of the arch of foot....	12".....	9¾"
" round ankle and heel...	14¾".....	12¼"
" of calf.....	12¾".....	11"
" " toes.....	10".....	8½"

He was undoubtedly affected with syphilophobia.

The SECOND CASE exemplifies the same condition in a female:

A. V... was admitted to the Leeds Union Infirmary on September 16,1908, complaining of difficulty in "getting about". She was married, but had no issue. The only illnesses she has had were bronchitis, and syphilis which she contracted three months after her marriage 13 years ago. She had been a general domestic servant and seems never to have indulged in alcohol unduly.

On admission the left leg was oedematous, and the skin round the left ankle was hypertrophied, in folds, and verrucose; the left tibia was also much thickened. Measurements were not taken, but the increase in size was very marked and attracted attention at once. The oedema disappeared, and the thickened ankle and foot were more prominent. The digestive and respiratory systems were normal. Her mental condition was questionable; three days after her admission she developed insanity and had forthwith to be removed to an asylum.

The THIRD CASE illustrates the hypertrophic syphiloma of Fournier:

J. M., aged 55, was admitted to the Leeds Union Infirmary, on March 1,1909, complaining of swelling of the lower lip and pain in the mouth and tongue of ten days' duration. She was a widow and had 14 children, 11 of whom died young; but she never had had an abortion or miscarriage. She does not remember having suffered from syphilis, but her husband was a heavy drinker and often came home intoxicated. She herself was not temperate, and her occupation was that of charring. In 1898 she was in our institution on account of ulcers on the legs; these ulcers were described as syphilitic.

Present Condition.- The lower lip was thickened, three times larger than the upper, and everted. The tongue was painful and affected with sclerosing glossitis. The legs were covered with syphilitic scars, and the sight was defective. On the lip and chin there were two or three crusted spots, and these were of a syphilitic character.

CUTANEOUS GUMMATA.

This is only a further development of the gummatous

syphilide,and the term is usually applied to the circumscribed form of the cutaneous syphilide.Gummata form cutaneous protuberances,varying in size from a pea to a large marble.They are hard at first,but soften later and form ulcers of the typical tertiary syphilitic type.Their situation is anywhere on the integument,but they occur most frequently on the limbs,especially the lower.The ulcer may be aggravated by secondary pyogenic infection and may become phagedenic.The number may vary from one to many.It is a very common condition,and cases are numerous in every large hospital (see later).(p.90.)

SUBCUTANEOUS GUMMATA.

These develop as nodules of varying size in the subcutaneous tissue,and are hard and movable in the early stages, but soon adhere to the skin,perforate it,and cause a gummatous ulcer.Like the cutaneous gummata,their favourite situation is on the legs,and they are by no means uncommonly observed.The first change consists of a perivascular infiltration,which is localized;but the centre breaks down at an early date,and it finally consists of necrotic tissue held together by connective tissue.The cause of the softening lies in the fact that the cellular infiltration is so great that it causes softening of the intercellular tissue.These tumours are of slow evolution, of varying numbers,scattered or grouped together,and leave a depressed cicatrix (see later under this heading). (p.90).

CICATRICES.

The cicatrices of tertiary syphilides are usually of a characteristic circular or oval shape,and of a dead-white parchment-like colour.A point which has not received the attention which it deserves is the useful character of the cicatrix. The tissue forming it is fairly tough,pliable,and not adherent to any structures beneath;there is no impairment of the usefulness of the part;no contraction results;and no impediment for future activity exists.

CIRCULATORY SYSTEM.

Tertiary syphilis affects every part of the circulatory system from the heart to the capillaries.Vascular changes occur in all stages of syphilis,and an endarteritis is an essential of all syphilitis lesions.The changes in the

circulatory system are either diffuse or localized as gummata; the latter have the structure of gummata in other situations, and as such have been described above, there is no need for repetition.

HEART.

Myocardium.

Tertiary syphilis attacks the cardiac muscle, either as an interstitial myocarditis or as a gumma;

(a) Interstitial Myocarditis.

Virchow, in 1859, was the first to prove that syphilis caused interstitial myocarditis without the presence of gummata; he found, on post-mortem examination, a heart which had gummata of the right ventricle and interstitial myocarditis alone of the left.

Since that time syphilitic myocarditis has been a recognized pathological lesion, and numerous cases have been recorded in the literature. The condition may be partial or diffuse.

The morbid process is a perivascular cell-infiltration and intermuscular inflammation, originating in the small vessels, and causing secondary degeneration of the muscle fibres. The cellular infiltration rapidly becomes connective tissue, which becomes fibrous and sclerous.

Mraček has shown that the lesion begins in the intima or adventitia of the vessels, and ends in obliteration of the vessels Bradlawski affirms that he has found round-cell infiltration of the cardiac nerve ganglia.

The writer has seen a few cases in which fibrous tissue replaced the myocardium in places, especially near the apex of the left ventricle. Such cases had a definite history of syphilis, and the conditions probably represented syphilitic myocarditis. In association with the change in the myocardium, there was thickening of the endocardium. The exclusion of rheumatism and alcoholism tended to favour the view that the condition was syphilitic.

(b) Gummata.

Gummata of the heart occur now and again, but they are by no means common; they present the same characteristics as gummata of other organs. Myocarditis and endocarditis are usually

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present at the same time. The gumma is most often found in the wall of the left ventricle, and is separated from the cardiac muscle by a zone of fibrous tissue. The w r i t e r has met with one CASE of cardiac gumma:

E. G..., aged 25, was admitted to the Leeds Union Infirmary, on November 21, 1907, complaining of shortness of breath, cough, and swelling of the legs of four weeks' duration. She was single, a tailoress by trade, and had never been incapacitated by any illness; there was, ~~however~~ NO, a history of rheumatism.

On admission, she was in a collapsed condition, and her breathing was much embarrassed. Examination of the lungs revealed emphysema, bronchitis, and pleural effusion. The cardiac dulness was increased, especially to the left, and the heart's sounds were rapid and irregular. The first sound was accompanied by a loud blowing ventricular systolic murmur. The lower limbs were very oedematous.

Paracentesis thoracis was performed, and the condition improved slightly; but the oedema spread rapidly, invaded the lungs, and death supervened a week after admission.

The diagnosis was mitral incompetence, with failure of compensation.

Post-mortem Examination.- Lungs, emphysematous and oedematous; serous fluid in the pleural cavities.

Heart, pericardium was adherent; left ventricle was dilated and hypertrophied very much; aortic valve was competent, while the mitral admitted three fingers. A tumour, about the size of a large bean and very hard, was found in the wall of the left ventricle on its anterior surface near the auriculo-ventricular septum. It did not project either inwards or outwards. On section, the tumour was found to have a wall of a gristly character, and to contain a small amount of a soft cheesy brown-coloured substance. The nature of this tumour was doubtful at first, but it was diagnosed as a gumma. It was shown at a meeting of the Leeds Pathological Society, and the general opinion there was it was of the nature just stated.

The liver was congested, and presented evidence of perihepatitis; the spleen was soft and congested, and the Malpighian

bodies were enlarged; the kidneys were in an inflammatory condition.

Pericarditis.

Syphilitic pericarditis is nearly always secondary to some cardiac or renal lesion, but a primary gummatous pericarditis does sometimes occur.

A pericardial gumma was found by the w r i t e r when making a post-mortem examination on a man, aged 78. It was the size of a pea and of firm consistence. In addition to this, there were a gumma on the visceral pleura of the left lung, arteriosclerosis, cicatrices on the surfaces of the kidneys affected with nephritis, and thickening of the membranes at the base of the brain.

The adherent pericardium described under gummata may have been syphilitic.

Endocarditis.

Endocarditis is a recognized lesion of tertiary syphilis, but cases are not by any means uncommon. Two varieties are distinguished - fibrous and gummatous; the former is more common than the latter.

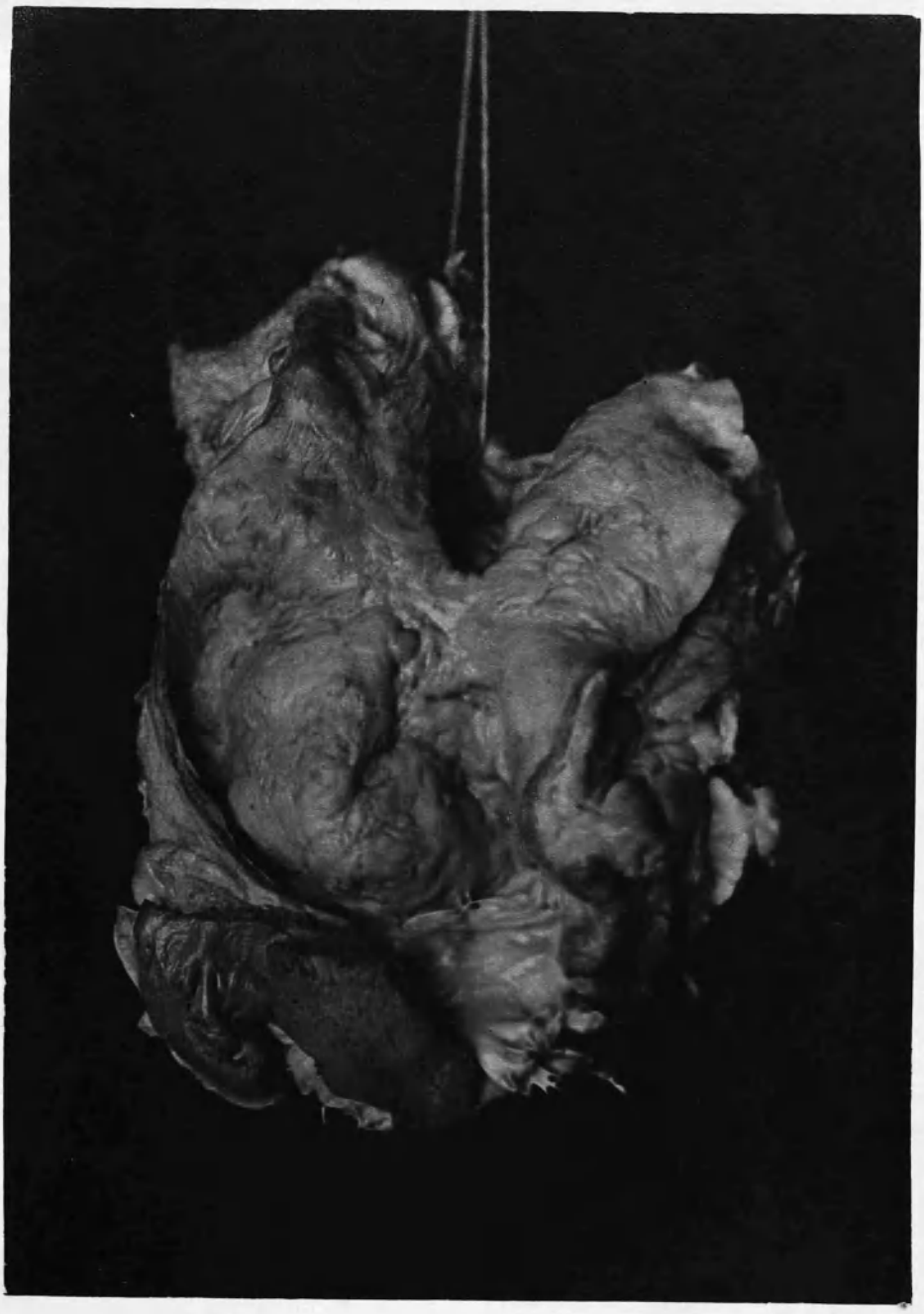
The w r i t e r has found that a fibrous thickening round the aortic and mitral valves is the usual syphilitic lesion of the endocardium; small nodules of a yellowish-white colour occur in the thickened endocardium. Thickenings of the endocardium at the apex of the left ventricle have also been found by the writer.

ARTERIES.

Changes in the blood-vessels constitute the fundamental pathology of syphilis in all its stages; in the early stages they are of secondary importance to the tissue lesions, but in tertiary syphilis they are of great import, on account of the lesions of the vessels themselves.

Arterial changes were described by Virchow in 1859, and by Lancereaux in 1861.

The direct cause of the arteritis is not known, but it is due to the microorganism itself or its toxin; changes of a degenerative character occur in the vessel wall in syphilis



ANEURISM RUPTURING INTO TRACHEA.

DILATED AORTA.

ATHEROMA.

and other diseases,but syphilis is the chief cause of arterial inflammation.

Heubner believed that the change began in the intima,but it is now generally accepted that it begins in the adventitia. The wall of the vessel is thickened,its elasticity is lessened, and its intima is congested.

Cerebral Arteries.

The cerebral arteries,especially those forming the circle of Willis,are most commonly affected.The vessels are thickened more or less irregularly,and,losing their transparent colour,become opaque and whitish.The cerebral vessels usually are very thin and insignificant,but when diseased they are thickened and easily seen.When cut,they do not collapse as healthy cerebral vessels do,but they remain patent and when stretched tear easily.The calibre is found to be less and may be easily obliterated in the later stages.As a rule,these changes are accompanied by an exudative meningitis causing thickening and matting of the membranes in the interpeduncular space.

The microscopical appearances are a cellular infiltration of the intima and adventitia;the intima and adventitia are also thickened,and the vasa vasorum of the latter thickened.The primary change may be the thickening of the vasa vasorum. The internal elastic lamina is usually present and the external wanting.This condition constitutes endo-periarteritis;the media may be involved as well,and a periarteritis result.The change in the media consists of atrophy of the muscle cells and their replacement by fibrous tissue.

The vascular cerebral lesions are typical of the pathological changes which occur in all the smaller arteries. These lesions may be periarteritis,endarteritis,endo-periarteritis, or panarteritis;and they are simply the same process affecting one or more coats.The endarteritis may be an endarteritis obliterans,and aneurysm often results from the changes in the vessels.

Atheroma.

Syphilis of the aorta is called atheroma,and it differs from arteritis by the greater extent of the lesions in

TYPICAL SYPHILITIC ATHEROMA.

p. 34.

the latter case.

Martin showed that the first change in atheroma was an endarteritis obliterans of the vasa vasorum which caused obstruction to the nutrition of the walls of the aorta, with resulting degeneration. It is thus seen that atheroma of the aorta is a secondary condition.

Atheroma of the aorta usually affects the ascending portion and the arch, but the other parts are not immune. A common situation is at the beginning of the arch where the force of the blood-stream is most acute. A typical patch of syphilitic atheroma consists of a soft, pliable, irregularly-shaped area of white or yellowish-white colour, and varying in size from a pin-head to a patch two or three inches square.

The accompanying PHOTOGRAPH is typical, and was taken from the aorta of a syphilitic patient; the characteristics described above are well seen.

There seems to be a belief that atheroma of the aorta tends to become calcareous, but in the opinion of the writer such is not the case. He has examined about 150 atheromatous aortas, and has never found an atheroma with calcareous plates in a syphilitic subject who had not been a heavy drinker or a hard worker. In all cases of calcareous atheroma there was a history of drink or strain, and in most a history of syphilis. Many cases of soft atheroma occurred in patients who had two of the causes; but that merely proves that calcareous degeneration is not the necessary concomitant of drink or work. The cases showing a pure uncomplicated syphilitic history presented soft atheroma invariably.

Arterio-sclerosis.

Local arterio-sclerosis may undoubtedly be a syphilitic lesion, but general arterio-sclerosis is not. Opinion, however, is not agreed on this point. Some affirm that a general arterio-sclerosis may be syphilitic, and others are quite as emphatic in insisting that the contrary is true. There is a view that parasyphilitic lesions may include general arterio-sclerosis, but there is no proof thereof.

The w r i t e r has carefully examined the records of cases of arterio-sclerosis admitted to the Leeds Union Infirmary

during the last few years, and has been unable to convince himself that syphilis, per se, is a cause of general arterio-sclerosis. Most of the cases had an alcoholic history, and many had no syphilitic history. Alcohol and syphilis in combination may cause the condition. There was not a single case of general arterio-sclerosis in a subject with uncomplicated syphilis.

The only argument that can be adduced in favour of arterio-sclerosis being parasyphilitic is that it may depend on a syphilitic lesion of the suprarenal.

Atheroma has been produced in rabbits by injection of adrenalin into the veins, and it is possible that arterio-sclerosis may be due to a suprarenal lesion. Post-mortem lesions of the suprarenals are not common, but they do occur. The number of post-mortem lesions of the suprarenals is not in accord with the number of cases of arterio-sclerosis (see under this heading later) (p. 110).

NERVOUS SYSTEM.

Syphilis of the nervous system is the most malignant manifestation of the disease, and occurs in a large proportion of syphilitics. The virus affects the central nervous system by causing a specific inflammation of the membranes and blood-vessels, giving rise to occlusion of the latter and subsequent degeneration of the nerve elements, or by causing gummata in various parts of the brain and spinal cord.

The MENINGES are often affected, and leptomeningitis is common; thickening and matting of the membranes in the inter-peduncular space is suggestive of syphilis, as this condition occurs very frequently in syphilitics. Very few cases of tertiary syphilis are found without this condition of the membranes. In addition to this exudative meningitis, there also occurs gummatous meningitis.

The BRAIN substance is a common site of gummata, which differ only from other gummata in situation and effects. One or two cases of gummata have come under the observation of the w r i t e r (see later). (p. 114).

Syphilis is undoubtedly the cause of many cases of dementia, and post-mortem examination reveals, in addition to the

TYPICAL SYPHILITIC TONGUE.

p. 39.

chronic leptomeningitis and arteritis, an increase in the amount of cerebro-spinal fluid. This increase is of importance .

It has been observed, by the w r i t e r, that in patients with such a condition a fall is often followed by death. This may be due to the fact that the fall occasions a further sudden increase in the amount of the fluid, and that, the economy being unable to stand it, a lethal issue is observed.

Cerebral arteritis has been discussed above.

The SPINAL CORD is frequently attacked by the syphilitic virus, but the lesions found on post-mortem examination are few. The condition may be confined to the cord, but the brain and its membranes are usually involved; the lesion may be circumscribed or diffuse, and may be of the membranes or cord or both (see later). (p.119).

The spinal and cranial nerves may be the seat of an interstitial neuritis or of gummata.

The microscopical appearances consist of cell-infiltration and arteritis, as are found elsewhere.

MOUTH AND ADJACENT PARTS.

LIPS.

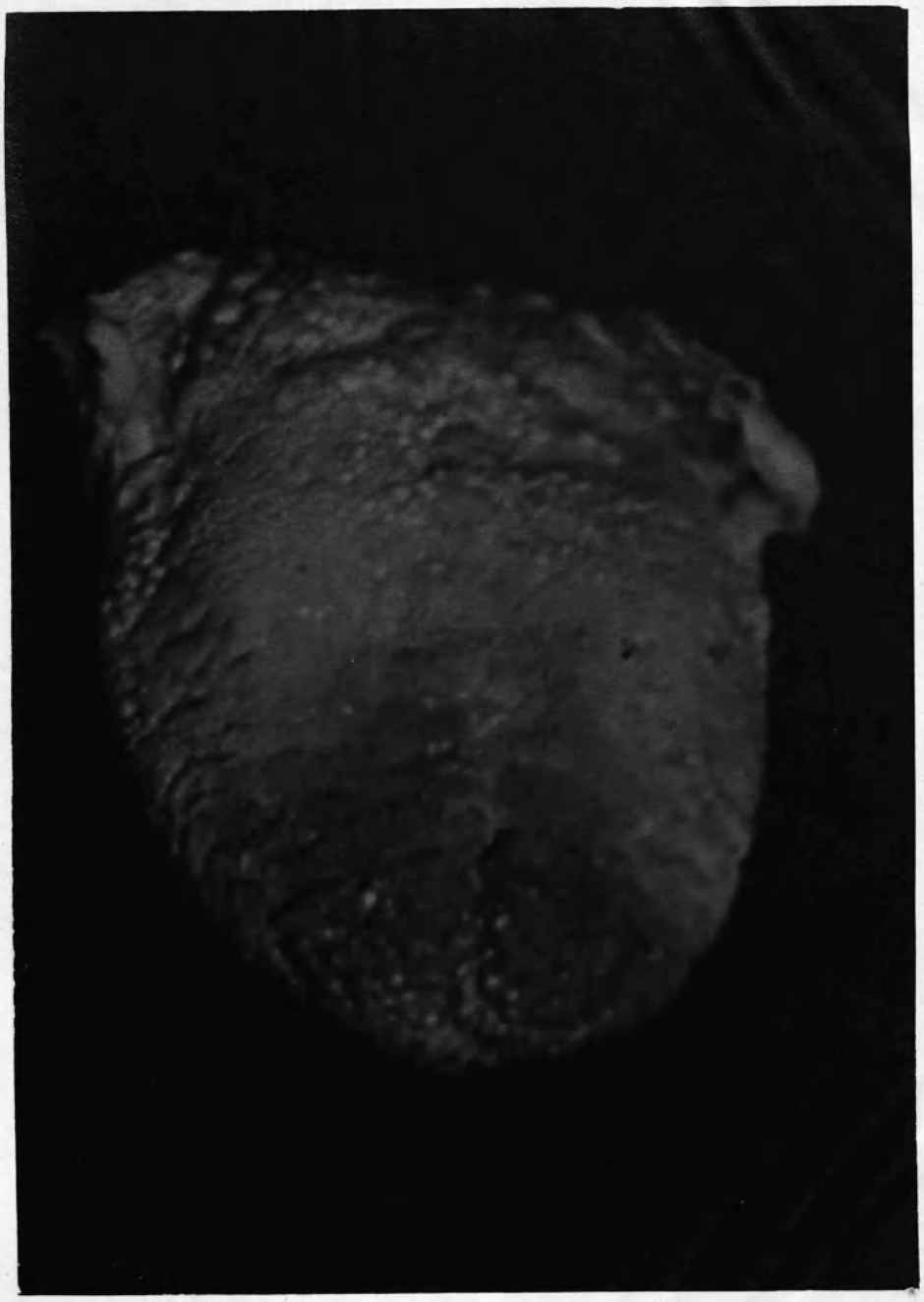
The lips are not often affected in tertiary syphilis; the common affections are crusted syphilides (vide supra) and diffuse hypertrophic syphilide (vide supra). The two conditions may occur separately or together.

TONGUE.

The tertiary lesions of the tongue are a sclerosing glossitis and gummata; the latter is the less frequent, and in every respect it is the same as other gummatous lesions. The two affections may coexist.

The sclerosing glossitis is the more common, and causes the characteristic syphilitic tongue. The dorsum is affected and presents a finely convoluted surface resembling that of a brain; the lobulation is fine and the lobules are small. The depressions between the lobules are due to contraction of fibrous tissue, and form a fine network not found in any other disease.

The accompanying PHOTOGRAPH presents the characteristic



TONGUE.

p.40.

appearances,and is the photograph of a tongue in the writer's possession. The usual description of a syphilitic tongue does not correspond to this;it is described as fissured and lobulated,the lobules being much larger than in this case.The condition illustrated is much more common and more characteristic than the usually accepted type.The tongue is enlarged at first and may or may not contract greatly at a later stage.The tongue used for the illustration is larger than normal.

Leucoplakia.

This is a condition that has been the subject of much disputation.Most syphilographers agree that syphilis has a share in its production,but to what extent they are unable to determine.Some say it is tertiary,while others affirm that it is parasyphilitic.The generally-accepted opinion is that syphilis is the most frequent cause of leucoplakia,if not the only cause.

The tongue presents patches of a pearly-white colour,of varying shape,and of different thicknesses on the dorsum or sides;the surrounding mucous membrane is greatly infiltrated and thickened.As the lesion progresses the tongue becomes fissured and folded,and the folds are liable to ulceration and erosion.The mucous membrane exfoliates in large patches.

When due to syphilis,there is endo-periarteritis causing an embryonic connective-tissue formation;there is also hyperkeratosis of the epithelium and sclerosis is the termination.

PALATE. etc.

The palate is a favourite site of tertiary syphilitic lesions,which are gummata,gummatous infiltration,ulcerative gummatous syphilides,and gummatous periostitis - the last-mentioned usually causing perforation. The lesions are the same as occur elsewhere and already described. The most dreaded affection is phagedaenic gummatous ulceration of the soft palate. The tonsils,pharynx,tongue,and nose are also affected with syphilides and gummata. The ear is seldom the seat of visible lesions in the tertiary stage,but syphilides of the internal ear and otitis media sometimes occur.

STOMACH AND INTESTINES.

Tertiary lesions of the stomach and intestines are

SYPHILITIC THICKENING OF TIBIA.

not of frequent occurrence in the post-mortem room. Gummata and a diffuse infiltration are the lesions that do occur; secondary ulceration may result, and the healing process may cause a stenosis of the part affected. The gastric lesions consist of ulcers, infiltration, and gummata; the most frequent condition is stricture of the rectum (see later) (p. 104).

OSSEOUS SYSTEM.

The pathology of tertiary syphilitic lesions of the bones is essentially the same as occurs elsewhere, and consists of perivascular cell-infiltration and the formation of gummata. The periosteum, the bone itself, or the medulla may be the chief seat of the lesion, and periostitis, ostitis, or osteomyelitis result.

OSTEOPOROSIS.

Ostitis and periostitis are so closely related to one another that it is best to consider them together as osteo-periostitis. The change may begin in the periosteum or the bone; but it usually occurs first in the former and spreads to the latter. The spread may be outwards to the surrounding tissue, but this is not extensive. The cell-infiltration collects between the periosteum and the bone, and is accompanied by inflammatory oedema of the subcutaneous tissue. The bone is invaded by means of the blood-vessels, and the Haversian canals become filled with small round cells. The condition is usually localized, and as a result rounded periosteal swellings, called "nodes," result. The usual termination is that the node becomes osseous tissue, and an exostosis results.

The superficial bones - tibia, clavicle, and cranial bones - are most often affected. The tibia is the bone that is most frequently involved.

GUMMATA.

In a gumma of a bone, the central caseation and peripheral fibrosis that occur in a visceral gumma give rise to rarefying ostitis and osteosclerosis.

The gumma may occupy the periosteum or the bone itself. When situated in the periosteum, there is a gummatous infiltration of the Haversian canals, which become enlarged, and absorption of the bone occurs. This process is called "syphilitic

OSTEOSCLEROSIS.

SKULL

p. 42.

caries","gummatous ostitis",or "dry caries".The bones of the cranium show the typical process;the pericranium and dura mater are attacked with the bones,giving rise to holes of various sizes and causing a worm-eaten appearance.At the periphery osteosclerosis is going on,and causes a raised margin of hard bone.The worm-eaten portion may become necrosed and cast off,on account of the obliteration of the vessels in the Haversian canals (see later)(p.125).

The accompanying PHOTOGRAPH gives a good idea of the dense diffuse syphilitic sclerosis of the bones that occurs in syphilis.There is no diploë,and the bone is dense throughout;it is heavy and difficult to cut through.

The photograph of the tibia shows how syphilis causes enlargement of that bone.

JOINTS, etc. (See later.)(p.128).

ARTHRITIS.

Syphilitic arthritis is very chronic,and may occur as a gummatous arthritis or as an osteo-arthritis.

(a) Gummatous Arthritis.

This condition is commonest in the knee-joint. The subsynovial cellular tissue and periarticular fibrous tissue are infiltrated with a gummatous deposit;secondary effusion occurs,and ankylosis may result.

(b) Osteo-arthritis.

The knee is the usual seat of osteo-arthritis, which is not a common condition.It is a gummatous osteitis affecting the diaphysis,and epiphysis without implication of the synovial membrane.

MUSCLES, etc.

Tertiary lesions of muscles,tendons,and tendon sheaths are rare;they are usually of a gummatous type when they do occur (see later).(p.130a).

BURSITIS.

Syphilitic bursitis is common,and cases are very commonly observed in every practice. It is of a gummatous type and often ends in ulceration. (p.133).

LIVER.

Post-mortem examination shows that the liver is frequently

affected by tertiary syphilis. Perihepatitis, of a circumscribed or diffuse character, is a common condition; cases being so numerous, examples are unnecessary. Interstitial hepatitis occurs in a relatively large number of cases; the perivascular infiltration occurs round the small vessels, and later becomes fibrous tissue, which ultimately contracts and leaves the liver lobulated. This lobulation is of a coarse character, and gives the liver an irregular appearance. The exact extent of the syphilitic nature of the lesion is not known, because in most cases alcoholism and syphilis coexist. The hob-nail liver of alcoholics may have a syphilitic basis, as all alcoholics do not show a cirrhosis of the organ.

Gummata of the liver are common; they are frrquently associated with perihepatitis, and are most often found on post-mortem examination in a state of resolution. They leave cicatrices which cause puckering, if situated near the surface. When found as gummata, they present no appearances different from others; there ~~is~~ ARE central caseation and peripheral fibrous tissue.

The w r i t e r has come across <u>five cases</u> of gummatous livers in the last hundred post-mortem examinations, two cases of interstitial hepatitis causing lobulation, and numerous cases of perihepatitis (see later). (p. 95).

SPLEEN.

The spleen is affected in tertiary syphilis, and is usually associated with syphilis of the liver and kidneys. The most frequent condition is a peri~~hepat~~SPLEN itis of a limited part, or one of a generalized character. The substance of the spleen may be firm or soft, and the organ may or may not be enlarged.

Gummata of the spleen are not common, and only one case has been seen by the w r i t e r, while many cases of perisplenitis and splenitis have been by him observed (see later). (p. 94).

PANCREAS.

The syphilitic lesions of the pancreas are gummata and interstitial fibrosis, but they are certainly uncommon. The pancreas is more often affected in hereditary than in acquired syphilis.

Interstitial fibrosis is more common than gummata, and the

lesion consists of a perivascular cell-infiltration, resulting in an overgrowth of connective tissue and atrophy of the glandular elements.

Gummata of the pancreas are the same as occur in other situations. (see p. 135).

SUPRARENALS AND KIDNEYS.

SUPRARENALS.

The suprarenals are seldom the seat of any gross lesions, but gummata and sclerosis occur now and then.

The w r i t e r has examined the suprarenals in every post-mortem that he has performed, and found them thickened and more resistant than normal in some cases. In one CASE they were distinctly enlarged and very firm - this observations being in the case of a man, aged 61, who contracted syphilis twenty years previously. The liver presented cicatrices on the surface, and was adherent to the diaphragm; the kidneys were in a state of interstitial nephritis. The aorta was dilated and atheromatous, plates being absent, and the brain presented matted and thickened membranes at the base. (see p. 133).

KIDNEYS.

The kidneys show some alteration in every case of syphilis which is examined after death. The condition is usually that of an interstital nephritis, which presents fibrous glomerulitis, fibrous infiltration of the renal substance, degenerated tubules, and arteritis. The degree of inflammation varies, but it is usually extensive and often is the the immediate cause of death.

Gummata are rare; indeed, during the course of nearly <u>two hundred</u> post-mortem examinations the w r i t e r has not come across a single case. The nearest approach was his observation of cicatrices on the surface of the kidneys (which were in all probability the site of gummata); perisplenitis, nephritis, arterio-sclerosis, and thickened and adherent membranes at the base of the brain were found in the same case (see later). (p. 102.)

GENITALS, etc. (p. 138.)

The male and female genitals may be the seat of gummatous infiltration; this lesion simulates a chancre when situated on

the PENIS;but it does not cause adenitis,and scrapings from it do not reveal the spirochaete pallida.Ulceration,which may become phagedenic,sometimes succeeds the gummata.A diffuse hypertrophic syphiloma of the penic occurs rarely.

The TESTICLE may be the seat of an interstitial sclerosis or of a gumma,both of which show the usual syphilitic changes.

The BLADDER, PROSTATE, and PELVIS are practically never affected by tertiary syphilis, though Lancereaux (Treatise on Syphilis) says that prostatic tumours may be syphilitic.

The OVARIES, UTERUS, and FALLOPIAN TUBES may be involved in tertiary syphilis with sclerosis or gummata;but cases are not numerous and little is known about them at present.These gummata,like those in any other situation,may break down and cause ulceration.

The MAMMARY GLAND may be the seat of an interstitial mastitis or of gummata (see later).(p.138).

RESPIRATORY SYSTEM.

TRACHEA.

Syphilitic affections of the trachea usually involve the upper and lower thirds,especially the latter area.The post-mortem condition is a narrowing of the trachea.Sometimes typical ulcers occur on the tracheal wall in old neglected cases of syphilis,and result in perichondritis and necrosis of the cartilages.

BRONCHI.

Gummata of the bronchi are sometimes found;and,when cicatrization occurs,stenosis,usually accompanied by dilatation, is produced.

LUNGS.

Syphilis of the lungs has been the subject of much controversy.Gummata and an increase of connective tissue in the lungs have been found,in patients who have died,having undoubted evidence of syphilis.The syphilitic pulmonary condition is so like that of pulmonary tuberculosis that many cases of syphilis of the lung have been classed as phthisis.Congenital syphilis affects the lung,and presents no difficulty in diagnosis;but acquired syphilis is difficult to detect in this situation.

The essential lesion is an interstitial pneumonia,which

begins as a perivascular cell-infiltration and usually ends in sclerosis. The affection is chronic and involves the lower half of the lung more often than the upper. The part implicated is hard, grayish or blackish in colour, elastic and resistant, and does not crepitate. Microscopical examination does not reveal any characteristic changes.

Gummata of the lungs occur, as a rule, in the interstitial tissue, and are doubtless the cause of many cicatrices believed to be the outcome of a tuberculous condition (see later). (p. 98)

PLEURA.

The pleura is not commonly affected in tertiary syphilis; the writer has met with one case of pleural gumma, which occurred along with a pericardial gumma (vide supra).

Pleural adhesions are doubtless due more often to syphilis than is generally supposed.

EYE.

Tertiary syphilitic lesions of the eye are so closely related to those of the secondary stage that a distinct line of demarcation between the two is impossible, unless gummata are regarded as the only tertiary lesions.

GUMMATA may appear on any part of the eye or its appendages, and there present so special characteristics. The EYELIDS may be the seat of a gummatous TARSITIS or ulceration; the IRIS, CHOROID, CILIARY BODY, and CORNEA are other seats of the lesion, and of these the ciliary body is the most often affected.

Iritis and chorio-retinitis are described under the secondary lesion. (see p. 143).

OPTIC NEURITIS.

Optic neuritis is either primary or secondary, and may or may not end in optic atrophy. The condition is similar to any other optic neuritis, and it is not peciliar to syphilis.

NOSE.

Gummata and tertiary syphilitic lesions frequently attack the nose and cause deformity; the typical syphilitic nose is sunken and the bridge is deficient or absent. (see p. 148).

The affection of the LARYNX and GLANDS will be described later on. (see p. 100 & 133).

ANALYSIS OF POST-MORTEM EXAMINATIONS.

The following is an analysis of the one hundred and fourteen consecutive post-mortem examinations made by the w r i t e r at the Leeds Union Infirmary.

SEX INCIDENCE.

Males..... 76

Females..... 38

AGE INCIDENCE.

Years	½ to 1½	1-5	6-10	21-25	31-35	36-40	41-45	46-50	51 - 55
Males	5	5	2	1	3	1	3	9	5
Females	8	2	-	3	-	2	-	1	1

Years	56-60	61-65	66-70	71-75	76-80	81-85	86-90
Males	7	5	13	5	11	1	-
Females	6	-	8	2	3	-	2

HISTORY.

Definite history of Syphilis 36 or 31.5%

Indefinite " " " 24 " 21%

No " " " 54 " 47.4%

LESIONS FOUND. (Positively and probably syphilitic.)

Cerebral.- In 28 cases.

Meningitis - 26

Softening of the brain - 4

Tumour - 2

Circulatory.- In 55 cases.

Dilated aorta..... 40

Aneurysm..... 5

Ruptured Heart..... 2

Endocarditis..... 4

Pericarditis..... 3

Gummata..... 2 — Heart..... 1, Pericardium... 1

Arterio-sclerosis..... 5

Atheroma..... 40

Arteritis..... 19

Thrombosis..... 2

Liver.- 17

Perihepatitis..... 6

Hepatitis..... 15

Cicatrices..... 3

Gumma..... 5

Gall-bladder.....

Gumma..... 1

Spleen.- 18

Splenitis..... 10

Gummata..... 1

Perisplenitis..... 12

Kidneys.- 48

Nephritis..... 48

Cicatrices..... 1

Gummata..... 0

Suprarenals.- 16

Sclerotic..... 10

Soft..... 6

Bones.- 15

Thickening..... 14

Caries..... 1

Gumma..... 1

Pleura.- 30

Thickening..... 30

Gumma..... 1

Nose.- 1

Loss of nose..... 1

Lung.....

Phthisis frequent: probably syphilitic in some cases.

Intestine.- 1

Constriction of sigmoid flexure..... 1

[redacted]

--------B A C T E R I O L O G Y.-------

HISTORY.

The inclusion of syphilis amongst the infective granulomata is due to the fact that in syphilis the local tissue-reaction is of a chronic nature, as the irritant is not intense and, the proliferative processes being greater than the vascular disturbances, connactive tissue or a modification of it is formed; in syphilis, too, other parts are infected from the primary lesion by means of the blood or lymphatic vessels. The exact nature of the cause of the infective granuloma was for a long time a matter of speculation.

The earliest theories as to its origin were numerous and fanciful; and it was not until Hunter proved it to be contagious that any reasonable cause was assigned to the disease.

Since the time of Hunter syphilographers of all countries have entertained the belief that syphilis was due to a specific infective substance, and many investigations as to its nature have been conducted. The first to bring forward an organism was Salisbury who, in 1868, found a filamentous fungus (cryptos syphilitica), which developed from spores and was found in the blood when constitutional symptoms developed.

Later, in the same year Hallier announced that he had found a micrococcus which he believed to be the cause of the disease. He cultivated this organism, and found that it grew into a fungus (Coniothecum syphiliticum).

In 1872, Lostorfer reported his discovery of syphilitic corpuscles in the blood of syphilitic patients, but this was soon put aside as untenable.

Cutler, in 1878, was next in the field with his discovery of changes in the white blood-corpuscles of syphilitic persons, and of mycelial filaments in the blood-serum. This result received scant attention.

Klebs, in the same year, published the results of his researches on the subject; according to him, rod-like moving bodies (helicomonades) are to be found in syphilitic tissue. These bodies were cultivated and became spiral-shaped masses.

Bermann confirmed Klebs' researches in their essential points.

A finely-granular zoogloea mass was found in syphilitic tissue by Pisarewski in 1880;this mass consisted of small round particles which,he assumed,became the rod-like bodies seen by Klebs.

The above history of the early investigations is mentioned by Hirsch (Geographical and Historical Pathology, Vol.ii,),and shows how many able observers handled this subject in the early days when the difficulties were such as would scarcely be believed at the present time.

RECENT RESEARCHES.

The next discovery was by Lustgarten,in 1884-85,who described a bacillus which he found in the primary and secondary manifestations of syphilis.This bacillus was by far the most famous of all the organisms that had been discovered,and it remained so until comparatively recently.It occurred as a a slender rod,straight or slightly curved,3 to 4 μ in length, often forming little clusters either within cells or lying free in the lymphatic spaces;it stained with difficulty with the basic aniline dyes,and was more easily decolourized than the tubercle bacillus.Lustgarten stained tissues for from twenty-four to forty-eight hours in aniline-water-gentian-violet and,after washing them in alcohol,placed them in a 1.5 per cent.solution of permanganate of potassium.They were then treated with sulphurous acid to remove the brown precipitate which formed and to decolourize the section.They were then washed in water,dehydrated,and mounted (Muir and Ritchie.-Manual of Bacteriolgy).The bacillus was not cultivated,and it gave no results when injected into animals.In certain respects it resembled the tubercle and smegma bacillus.

Macfarland (Pathogenic Bacteria) says that it was probably identical with the smegma bacillus,when found in the discharges, and with the tubercle bacillus when found internally.

Lustgarten found it in all of the sixteen cases which he examined,but others failed to find it at all.

In view of the latest discoveries,it is no longer regarded as the specific microorganism of syphilis.

Van Niessen, in 1898, said that he had found an organism belonging to the higher bacteria in syphilitic patients. He collected the blood of such individuals, allowed it to coagulate in sterilized tubes, and from the serum he cultivated his organism. This bacterium was motile and flagellated, stained with all the usual stains, including Gram's, and could be cultivated on all ordinary media. His results have not, however, been confirmed.

Joseph and Piorowski, in 1902, reported the cultivation of a syphilitic bacillus from the semen and enlarged glands of syphilitic patients; but no specific action can be attributed to this microorganism.

PROTOZOA.

One of the first to mention protozoa in relation to syphilis was Doehle who, in 1892, described flagellated bodies in the blood during the febrile stages of syphilis, measles, scarlet fever, and smallpox.

Siegel, in 1905, described small motile bodies, provided with a single flagellum, which he named "cytorycytes luis". They resemble the bodies described by Doehle. Rabbits and guinea-pigs reacted to inoculation, and the motile bodies were found in the blood and tissues.

Maclennan (Brit. Med. Jour., May 12, 1906) insists that these bodies form with the typical spironema (vide infra) part of a life cycle yet to be fully determined.

The brilliant results of Schaudinn and Hoffmann, during the years 1903-06, culminated in the discovery of the spirochaete pallida and refringens. They found the SPIROCHAETE PALLIDA in syphilitic lesions only, and regarded it as the cause of syphilis, while the latter organism was found in nearly all ulcerative lesions of the genitals. The term "spirochaete" was changed to "SPIRONEMA," because the organism differed in some fundamental respects from other spirochaetae; for instance, Schaudinn was unable to demonstrate an undulating membrane, and there appeared to be a flagellum at each end. These appearances justified a new name.

The organism is small and spiral-shaped, showing from

four to twenty curves, which are small and regular and comparatively sharp; its length varies from 4 to 14 μ, its breadth is 0.25 mm., and it is motile by virtue of the flagellum at each end. It cannot be cultivated on any of the known media, and its staining is a matter of considerable difficulty.

Lane (Practitioner, Oct., 1906) gives the following methods of staining:

(1) Giemsa - consisting of eosin and azur.

(2) Dr. Wright's blood stain - consisting of methylene blue, eosin precipitate, and pure methyl alcohol.

(3) Oppenheim Sach - consisting of carbolic acid and an alcoholic solution of gentian violet.

(4) De Marino - consisting of azur blue, methyl alcohol, and eosin.

(5) Levaditi.- The tissue is impregnated with silver nitrate, and sections are stained with Giemsa stain.

The SPIROCHAETA REFRINGENS is more refractile than the spironema pallida, is thicker and longer, has more open and less regular curves, and stains more readily.

The spironema pallida is found in primary and secondary lesions of both acquired and hereditary syphilis, but up to the present has not been found in tertiary syphilis - at least in the spiral form, although Neisser (Bull. de la Soc. Française de prophylaxis sanitaire et moral, April and May, 1906) believes that it is in such lesions; and Schaudinn (Deut. med. Woch., 1905) described it as occurring in tertiary lesions as a little granule.

Levaditi (Ann. de l'Inst. Pasteur, Jan., 1906) says that the number of organisms present in a case of hereditary syphilis is proportional to the severity of the disease.

W. E. de Korte (Practitioner, June, 1906) examined the blood in secondary syphilis, and found structures which Clarke (Protozoa and Disease) believes to be protozoa.

The organism can be obtained from the scrapings of syphilitic ulcers, lymphatic glands, mucous patches, and internal organs; Stephenson (Ophthalmoscope, March, 1906) found it in a syphilitic corneal lesion.

In 1904, Metchnikoff and Roux inoculated chimpanzees with syphilis, and found that the disease ran a typical course. Their experiments were confirmed by Grünbaum and Smedley (Brit. Med. Jour., March 17, 1906). Anthropoid apes have been found to be the most susceptible, while macaques are the least; it would thus seem that the disease is most serious in animals nearest the human species.

The spironema pallida has not yet been definitely proved to be the specific organism of syphilis, but the fact that it is found in nearly all cases of the disease, and never in non-syphilitic lesions, seems to prove that it is.

It is interesting to note that Castellani (Brit. Med. Jour., Nov. 18, 1905; Nov. 23, 1907) has found a spirochaete in yaws, which has been regarded as identical with syphilis by some observers. His discovery has been confirmed by Maclennan.

SERUM REACTIONS.

The study of immunity has been the means of increasing methods of diagnosis, and syphilis is one of the many affections that have received attention in this respect.

WASSERMANN'S SERUM REACTION.

Wassrmann's serum reaction for the diagnosis of syphilis is quite unlike Widal's serum reaction for the recognition of typhoid fever. It does not depend upon the clumping of the spironema pallida; it is, on the contrary, one of an entirely different order of serum reactions, the discovery of which opens up a wide field of possibilities in the way of specific diagnosis.

The test depends on one or two points; the first is that injection of sheep's blood into a guinea-pig causes the serum of the guinea-pig to have the power of dissolving sheep's red blood-corpuscles: this is haemolysis. The second point is that, if the serum of the guinea-pig is heated to 56. C., it loses this haemolytic action; and the third and last point is that this haemolytic action is restored by the addition of healthy blood.

Technique.- For the performance of the Wassermann test the serum of the suspected individual is mixed with an emulsion containing the spironema pallida, and added to the heated blood of a guinea-pig. If the haemolytic action is restored, then the

patient is not syphilitic;but,if it is not restored,he is suffering from that disease.The syphilitic serum and the emulsion have fixed the complement,and this prevents the restoration of the haemolytic action.

This diagnostic test is not yet fully developed,but it seems to be full of promise,and its potential possibilities cannot be overestimated.

MODIFICATION OF WASSERMANN'S SERUM REACTION.

A modification of Wassermann's serum reaction has recently been published by Bauer in the "Deutsche medicinische Wochenschrift".The requisites of the test are,besides the serum of the suspected individual,an alcoholic extract of the liver of a syphilitic foetus or infant, fresh guinea-pig serum,and a suspension in saline solution of sheep's blood-corpuscles. The two human sera are first heated to 56.C.,and then four small test-tubes are prepared in the following way:One contains the patient's serum,with five times the quantity of liver extract and of guinea-pig serum;the second has normal saline solution substituted for liver extract;and the third and fourth resemble the first two,but contain normal instead of suspected serum. After incubation at blood temperature for an hour,the sheep's blood suspension is added to each.Haemolysis occurs in the third and fourth,and more slowly in the second;whereas,if the patient is infected with syphilis,the first tube shows no reaction.

One of the PROBLEMS connected with these serological tests for syphilis is to determine precisely at what interval after the incubation of the disease the serum reaction makes its appearance.On the analogy of the Widal test for typhoid fever some such latent period would be expected.

At the present time, a SERIES OF EXPERIMENTS is being conducted at GLASGOW UNIVERSITY with regard to the serum reaction in syphilis, but the results thereof are not yet in the writer's possession.

STAINING.

The best method to employ in staining films for the spironema pallida is as follows:

Obtain the specimen by scratching the surface of a chancre

which has been washed thoroughly clean of all contamination. Spread the secretion thus obtained as thin as possible on a slide. It does not matter if there is a trace of blood. The slide thus prepared is dried in air, as free from dust as possible, and then hardened in absolute alcohol for fifteen minutes.

After fixing, the film is stained with Giemsa's stain. It is best to employ Grübler's stain and dilute it with sterile water ten times. It is advantageous to add calcium carbonate (a few drops of a 1 : 1000 solution) to the water. The slide should be inverted in the staining solution, as the stain deposits.

Let the slide stain for one hour, then wash it in water, dry without heating, and mount.

The spironema pallida is faint-red, and the other spirochaetes are blue. The nuclei are stained deep-red.

The method of staining sections is more elaborate and difficult. The tissue is first hardened in 10 per cent. formalin for twenty-four hours, then washed and hardened again in 96 per cent. alcohol for other twenty-four hours. It is then washed in water and placed in a 2 or 3 per cent. solution of silver nitrate, at 38. C., for from three to five days. The next step is to wash it in distilled water and to reduce it in the following solution for twenty-four to forty-eight hours:

Pyrogallic acid.....grammes 2,
Formalin..... c.c. 5
Aq. dest..... c.c. 100

After this, the tissue is washed in distilled water, dehydrated in alcohol (absolute), cleared with xylol, and imbedded in paraffin.

The section when cut are stained as above with Giemsa's stain for a few minutes, fixed in absolute alcohol containing a few drops of olive-oil, cleared with xylol, and mounted in Canada balsam.

The spironema is stained black, the nuclei green, and the connective and muscular tissue green also.

--------C O N T A G I O N.-------

SOURCES OF CONTAGION.

The syphilographers of old recognized the fact that syphilis was the habitual, if not the constant, result of contagion; at first they admitted that contagion might take effect at a distance, but, in 1512, Almenar ridiculed the idea because such cases occurred amongst religious people; and Fracastorius, in 1530, declared in his famous poem that contagion at a distance was impossible.

The present-day opinion is that contact with the syphilitic virus is necessary for the production of syphilis; it does not matter in the least what part of the body is exposed, as syphilis is always the same - no matter where the site of inoculation is placed. There is nothing contagious in a syphilitic subject amongst the products of morbid secretion, except those that have a specific origin. The sources of contagion are numerous and varied.

Primary syphilitic lesions are undoubtedly contagious. Clinical and experimental evidence amply verifies this statement. The contagiousness of secondary lesions is as well established as that of the primary, but some are more so than others: for instance, the mucous patches are more contagious than lesions of other kinds. The more the lesions secrete the more liable are they to transmit the disease. So far as is known at present, the lesions of tertiary syphilis are not contagious; this view is held by nearly all authorities, but there are a few who deny it. No doubt this question will soon be settled, as there is now ~~absolutely certain~~ evidence to ~~this~~ prove that the specific cause of syphilis has been discovered.

The blood during the primary and secondary stages of the disease is contagious; Hunter said that the blood was not contagious at any period - his reasoning being that, if such were the case, every scratch drawing blood in a syphilitic subject would be the seat of a chancre, he not knowing anything about immunity and never dreaming of inoculating a healthy individual to prove his contention.

Waller, of Prague, inoculated a boy of 15 with the blood of a syphilitic woman who had secondary manifestations, and produced typical syphilis (Lancereaux.- Syphilis, Vol. ii.).

Diday has done the same with the blood of tertiary syphilis, but with negative results.

These experiments have been confirmed by others.

Many syphilographers of the past have stated that the milk of syphilitic women is contagious, while as many have denied this. The assertions pro and con are numerous, but the proofs either way are few.

Most of the present-day writers agree that it is not; and Hutchinson (Syphilis) says that, if it were, syphilis would be more common than it really is; while Power (Encyclopaedia Medica, Vol. xiii.) affirms that it is innocuous, unless the mammary glands are affected.

The saliva has been variously regarded, but it seems that it is not capable of transmitting the disease, unless it comes from a mouth which has syphilitic lesions in it.

Bloch (Sexual Life of Our Times, 1908) goes the length of saying that the discharges in all stages of syphilis are infective; it would be wise to regard all syphilitic persons' secretions as possibly capable of communicating the disease to others.

MODES OF CONTAGION.

ACQUIRED SYPHILIS.

Paracelsus, in the following phrase, has succinctly summarized the modes of contagion: "Infectio triplici via, videlicet coitu, partu, tactu."

Whatever the mode of contagion, the seed should fall on ground where it can germinate, and it should penetrate, or else it dries up and is lost.

During SEXUAL INTERCOURSE peculiar facilities are afforded the disease, as delicate and easily-abraded surfaces of different individuals are brought into intimate contact while in a state of great hyperaemia and receptivity. Ever since the great epidemic already described, it has been recognized that coition is a most fruitful mode of contagion.

Bramwell (Atlas of Clinical Medicine) says that it is not unlikely that the poison may be communicated during sexual intercourse by an individual who remains unaffected to another person.

The percentage of cases due to sexual intercourse has been variously estimated;and Power (Encyclopaedia Medica) places it at 90.

Although sexual intercourse is the most frequent method of contagion,it must be borne in mind that syphilis is not necessarily a venereal disease,and that there are others ways of contracting the disease.

KISSING has long been recognized as a source of infection, as the large number of instances on record will prove;the existence of this mode of transmitting the affection should be impressed upon all syphilitic patients,as they are usually careless and ignorant,because they regard sexual intercourse as the only method of acquiring and propagating the malady.

During the last three years chancre of the lip has been observed twice in the Leeds Union Infirmary.

Simple contact suffices for the contamination,as is seen when PHYSICIANS and MIDWIVES are affected while dealing with syphilitic patients. The OBSTETRIC FINGER is the usual mode of inoculation.

The w r i t e r has a friend who was affected in this way some years ago,and it was some time before the lesion was recognized.

DRINKING-CUPS, CIGARS, PIPES, RAZORS, POSTAGE STAMPS, BOOKS, LINEN, and OTHER OBJECTS have been the means of transmitting the disease,as the numerous instances in the literature will prove.

Various INSTRUMENTS used in operations have from time to time been known to propagate the affection; thus cupping glasses, tattooing needles,and surgical implements have been the cause of numerous outbreaks of syphilis.

Hutchinson (Syphilis) records an outbreak amongst infants who had been circumcised by a priest; in this case a contaminated piece of lint in the instrument case was responsible for the propagation of the malady observed.

Certain TRADES are favourable to the propagation of syphilis, and amongst the most favourable is that of glass-blowing. The workmen at one time used a common blowpipe, and cases of contagion from a syphilitic patient using the tube have been numerous. Various improvements have taken place, and such cases are now almost unknown.

It seems strange that one of the most wonderful and useful discoveries ever made should have been a means of propagating syphilis - yet VACCINATION, which had protected civilized people from the ravages of smallpox, has undoubtedly been the cause of not a few cases.

This was first noticed in England by Moseley (A Treatise on Cowpox, 1805), and afterwards confirmed by other British and foreign observers; Hutchinson (Syphilis) and Lancereaux (Treatise on Syphilis, Vol. ii.) tell of various cases and epidemics.

CHILDREN affected with congenital syphilis are as capable of giving the disease to healthy persons as adults with the acquired affection. Many wet-nurses have been afflicted through suckling syphilitic children, and vice versa.

There seems to be no reason why syphilis should not be transmitted from one person to another by means of INSECTS and PEDICULI. The w r i t e r has long entertained the belief that the latter especially can, and do, transmit the disease. Insects are a factor in the causation of other diseases, and no doubt will soon be proved to have a similar function in the case of syphilis.

HEREDITARY SYPHILIS.

That syphilis is transmitted by heredity has long been recognized; and in 1536 Paracelsus wrote: "Tandem fit morbus hereditarius et transit ab patre ad filium ab infecto ad alium..... Est morbus foedus, magis hereditarius quam lepra."

Most syphilographers of the past have agreed with this statement; but Hunter did not, while some of his followers and pupils did.

The father and the mother are the factors whose single or joint influence requires to be investigated. The foetus may be affected in three possible ways - by father, by mother, or

by both father and mother.

PATERNAL INFLUENCE.

The transmission of the disease by a syphilitic father to a foetus without infecting the mother has long been a debated question;and at the present day the point is not one regarding which unanimity of opinion exists.

Such authorities as Astruc, Diday, and Campbell said that it was an established fact,and gave instances;whilst others, such as Vassal,Notta,and Charrier denied it (Lancereaux.- Treatise on Syphilis, Vol.ii.).The latter based their assertion on the small number of cases in which syphilitic fathers had begat healthy children while the mother had not been affected. Their conclusions were drawn from injudicious application of the evidence;all that they could reasonably deduce from their investigations was that a syphilitic father did not necessarily beget a syphilitic child.

Cases in which healthy children have been born to two syphilitic parents have been known.Hutchinson (Syphilis) says: "It is a matter of constant experience that the father of a syphilitic infant is known to have had syphilis before marriage whilst not a symptom has been observed in the mother.It is improbable that a large number of married women should acquire syphilis in its primary form,pass through its secondary stages, and yet never know it.Yet this is the supposition we must adopt if we reject the belief that a syphilitic father may beget a syphilitic child quite independent of any previous infection of the mother.In nine cases out of ten acquired syphilis is an affair which its victim cannot either ignore or forget ."

Power (Encyclopaedia Medica) says that there seems to be no doubt that the semen of a man in the early stages of syphilis can transmit the disease to a healthy ovum at the time of conception.

Bramwell (Atlas of Clinical Medicine) states that either parent with primary or secondary syphilis at time of conception usually begets a syphilistic child.

Lancereaux (System of Syphilis, Vol.ii.) concludes his evidence on the point by saying that syphilis in the father is

transmissible during the primary and secondary periods, but not in the tertiary, unless in a very modified form, and that is doubtful.

Colles, in 1837, and Baumes, in 1840, laid down a law to the effect that a mother who was well at the time of conception acquired an immunity against syphilis by being pregnant with a child that is syphilitic from its father. This law is not absolute, but the exceptions to it are few and obscure.

Another point in favour of direct paternal transmission is that innumerable observers insist that in such instances further syphilitic pregnancies may be prevented by antisyphilitic treatment of the father alone. There have also been cases in which a syphilitic father has given a healthy woman a syphilitic child, while a healthy man has given the same woman a healthy child.

Finger (Vienna Academy of Medicine, 1905) has shown by experimental inoculation of monkeys with syphilitic semen that the latter can convey the disease. This disproves the statement that the semen is not inoculable.

The opposite view, i.e., that every syphilitic child has a syphilitic mother has few defenders, except Sturgis (Morrow's System) and Matzenauer (Pfaundler and Schlossmann.- Diseases of Children). The latter denies that a transmission from sperm to germ has been proved, and asserts that intrauterine transmission is the only conceivable method of paternal transmission to offspring. He supports his opinion by stating that a purely germinal transmission is unknown in any other infective disease, and that these immune mothers have become syphilitic through an undiscoverable contact infection from a syphilitic husband, and for that reason alone are immune.

Other arguments are that about 9 per cent. of syphilitic women do not have, or at least do not remember having, any early symptoms of the disease; and the frequent appearance in later years of tertiary syphilitic symptoms in these apparently healthy mothers.

The condition of the placenta affects the vitality of the

child and its liability to disease; and Matzenauer has attempted to show that the decreasing virulence of syphilis goes hand in hand with decreasing inflammation of the placenta.

If, therefore, one denies direct paternal transmission, it is easily understood how the first children succomb and the last survive.

Kassowitz (Pfaundler and Schlossman.- Diseases of Children) formulated a rule to the effect that the degree of transmissibility of syphilis gradually diminishes in proportion to the duration of the disease. Abortions, still-births, living premature infants, living syphilitic infants, and, lastly, living healthy children is the order of things in syphilitic families. Kassowitz's theory explains this as easily as any other.

Having thus brought forward the evidence for and against paternal transmission, one must judge the case on its own merits. The arguments in favour of it are more or less clinical, whilst those against it are more or less pathological. The question is one which still requires elucidation; but, considering that nearly every one has clinical evidence for its defence, one would be inclined to favour the view of direct paternal transmission of the disease. Furthermore it is not a light matter for anyone to state that paternal transmission is impossible, as it opens the door of marriage - as Fournier says - to many syphilitic men who did not marry because of their fear of injuring posterity.

MATERNAL INFLUENCE.

That the mother may transmit syphilis to the foetus is a fact recognized by all syphilographers - the difference of opinion concerning paternal transmission not applying in this case.

The foetus may be syphilitic in one of two ways: it may be syphilitic at impregnation or after; the transmission of post-conceptional syphilis is purely intrauterine, and is analogous to smallpox transmission.

Mandon, of Limoges, (Jour. de Medicine Bruxelles, 1856.) says that syphilis contracted by the mother during pregnancy is not transmissible to the foetus; but this view is not generally

accepted.

If one allows that conceptional syphilis by means of a diseased ovum is possible, it is difficult to see how one can deny paternal conceptional heredity. Most authorities agree that germ inheritance is possible.

There is no doubt that a mother who has contracted syphilis during pregnancy can transmit the disease to the foetus; if she contracts it during the first half of pregnancy, there is more likelihood of the child becoming affected than if she had acquired it during the latter half. It is doubtful whether a mother infected after the seventh month cah transmit the disease to the foetus in utero.

MATERNAL AND PATERNAL TRANSMISSION.

If noth parents are syphilitic at the time of conception, the child is liable to be syphilitic.

Hutchinson (Syphilis) says that the fact that both parents are syphilitic is no worse than if only one were affected.

Pfaundler and Schlossmann (Diseases of Children) state that the disease is transmitted by both parents in 92 per cent. of cases.

If paternal transmission is possible, then the germ and sperm in this case both transmit the disease, and there is less chance of a healthy child springing from such parents; but if one denies direct paternal transmission, this is merely a case of maternal transmission.

[redacted]

-----S Y M P T O M A T O L O G Y.------

G E N E R A L C L I N I C A L C O U R S E.

STAGE OF INCUBATION.

As has been mentioned above, the first manifestation of syphilis does not occur for some time after the absorption of the poison. This interval of time is called the "PRIMARY INCUBATION PERIOD"; it is the calm that precedes the storm.

The existence of this incubation period is now undisputed; but such has not always been the case, ever since it was first described and advocated by Cazenave in the first half of the nineteenth century. According to Cazenave (Lancereaux.- Treatise on Syphilis, Vol. i.), syphilis "is a general disease from its commencement, which dates from the very moment at which the infecting contact occurs, as in all diseases which are virulent, and consequently general.....The primary symptom is not the first mode of action of syphilis, but really only the first phenomenal expression of the infection, and when it manifests itself the disease has already commenced".

Such is the statement of the originator of this doctrine. It is interesting to note that many eminent authorities supported him within a short time, while, as is usually the case with discoveries, many opposed him.

The incubation of syphilis thus brought forward has been amply verified both by clinical and experimental evidence. Experiments have been conducted upon men and animals by inoculating them with the disease, and the results have ~~been~~ conclusively proved that the reaction of the organism, into which the poison has entered, does not manifest itself immediately, but only after a varying period; clinical observation has also verified this point, but is not, of course, of so great value as experimental inoculation.

The period of incubation has been the subject of much study, and innumerable observations have been made to determine the duration thereof. The importance of determining the length of the primary incubation period lies in the fact that it enables a physician to state when a patient can be said NOT to have

contracted syphilis. Clinical observations and experiments on men and animals have been the means of definitely determining its duration.

Clinical observation is not so reliable as experimental inoculation, as the date of coitus is not necessarily the date of infection, because the microorganism may remain on the genitals and not enter the lymphatics for a time; but in such cases are the exception, and do not materially affect the conclusions arrived at. The generally-accepted duration is twenty-five days, but it is recognized that it may be longer or shorter, and that the usual limits are fourteen and forty-two days.

Lancereaux (Treatise on Syphilis, Vol. i.) says that the average duration of the incubation period is twenty-seven days in cases of transmission from secondary lesions, and less in cases of transmission from primary sores.

Hutchinson (Syphilis) states that the primary incubation period is rarely less than five weeks.

The w r i t e r has investigated a number of cases and come to the following conclusions: The average duration of the primary incubation period is twenty-five days (the exact figure is 25 1/9); in few cases is it more than forty days, and in none is it less than fourteen. Cases in which it is more than six weeks are not common, and less than fourteen days questionable.

Experimental observations have shown that the incubation period is about twenty-five days.

The fact that the primary incubation period is not constant shows that there are certain facts upon which the differences depend. The dose and virulence are doubtless of great importance in determining the duration, and the idiosyncrasy of the individual is even more important. Other points are the state of health of the person at the time of inoculation and the channel of introduction of the microorganism.

As a rule, this period is devoid of symptoms, as in the case of acute specific fevers, which constitutes a point of resemblance between them and syphilis. In some cases, however, the patient may be much worried, and his health may suffer if he has realized his risks; while in other cases malaise and headache may occur at the end. But they are by no means diagnostic, and

often are the indication that the primary lesion is manifest.

PRIMARY STAGE.

The primary stage of syphilis includes the changes that occur in the period of time which elapses from the moment the chancre appears to the time when the first general phenomena appear, and is called the "SECONDARY PERIOD OF INCUBATION." It is characterized by a local sore and a local glandular enlargement, which are slow in evolution and have a natural tendency to resolution.

CHANCRE.

The local sore or hard chancre occurs at the end of the incubation period at the site of inoculation, and is usually single, while the adenitis is multiple. As a rule, there is not much difficulty in discovering the chancre, but in some cases it may easily be overlooked or undiscovered. In women it is often much less evident than in men, and is apt to escape attention; in some cases it is so slight that it is not noticed for some time, and, even when recognized, its real nature is not understood, or suspected. The presence of other diseases, e.g., gonorrhoea, at the same time may conceal the chancre, and the situation may be such as to cause it to be overlooked. The local glandular enlargement in such cases is typical enough to render a correct diagnosis easy.

The chancre is usually situated upon the genitals; but it must be remembered that it may occur anywhere, and that its appearance depends upon its site, the presence or absence of irritation, and the occurrence of other lesions. At the commencement there occurs at the point of inoculation a circumscribed redness, which rapidly becomes a new growth and varies in size, but is usually very small. This neoplasm or granuloma begins as a small flat papule, which slowly increases in size and may continue dry or become eroded or result in ulceration. In all cases the induration is sharply defined, circumscribed, and - a characteristic and striking feature - it varies in intensity and may cause the chancre to feel as hard as cartilage, or it may be scarcely palpable. The amount of induration varies with the age of the chancre and the amount of irritation.

Resolution is the termination, and in about six weeks the chancre begins to resolve; the edges collapse and cicatrization occurs. The cicatrix or depression that follows the primary lesion is of more or less permanent character, depressed, rounded, and occasionally pigmented.

No scar is left if the lesion has been superficial; the chancre usually lasts for from four to six weeks, but some trace of induration may persist for months.

Number of Chancres.

The most striking characteristic of a chancre is its insignificance, and next in order of importance is its uniqueness; too much stress cannot be laid upon the latter fact, as multiple hard chancres are not unknown.

Papagaey (Keyes.- Syphilis) collected over 14,000 cases, and found that in from 25 to 33 per cent. the chancres were multiple; it is therefore a grave clinical error to insist upon uniqueness as a characteristic sign. When multiple, the usual number is two, but they may be much more numerous. Genital chancres are more often multiple than extragenital, but the largest number of chancres found in one individual occurred on the breasts of a suckling woman.

As a rule, multiple chancres are in the same stage of development; but this is by no means essential, as they are autoinoculable, and successive chancres can develop for some time after the first has appeared. The latter fact shows that immunity takes some time to develop.

Situation of Chancres.

The genital organs are undoubtedly the most common seat of chancres, but extragenital chancres are by no means of infrequent occurrence. The lips are a common seat, while the nose, eyes, fingers, buccal cavity, ears, and anus are at times affected. A chancre may occur anywhere on the integument and wherever there is possibility of contagion. It is said that extragenital chancres are found most frequently in Russia.

ADENITIS.

With the development of the induration of the chancre the neighbouring lymphatic glands begin to enlarge; this enlargement continues for one or two weeks, is the result of a

constitutional infection and not of inflammation, and is the usual, if not the necessary, concomitant of the primary lesion.

The adenitis affects the group of glands nearest the chancre, and is confined to one group, unless there is crossing of the lymphatics, as in the case of the inguinal glands, when two groups are affected. The enlargement is painless, indolent, non-suppurative, and is not accompanied by any evidence of inflammation either in the gland itself or in the surrounding tissue. One gland first slowly enlarges, and is soon followed by the other glands in the group; the first to enlarge usually remains larger than the others, and is seldom larger than a cherry. Each gland remains separate, and the absence of peri-adenitis is characteristic. The hardness is an important feature; the shape is round or oval, and the resistance is quite distinct.

The glands are freely movable beneath the skin, upon the subjacent parts, and upon one another.

Inflammation may occur as the result of secondary pyogenic infection, and in that case the cardinal signs of inflammation appear, and the induration may end in suppuration; Lancereaux (Syphilis, Vol. i.) noted that the product of this suppuration was not inoculable.

A characteristic feature of the induration which occurs is its tenacity; it outlasts, as a rule, the chancre, and may persist for years. This fact is of importance, as it may enable one to diagnose syphilis when other signs and symptoms are doubtful.

The usual termination is resolution, but it is not known whether the glands regain their normal functions or not.

A soft chancre may occur along with the hard chancre and cause a mixed bubo; in this case the chancroidal lesion overshadows the other. The enlargement is inflammatory, and tends to suppurate quickly; but induration appears later.

LYMPHANGITIS.

The lymphatic vessels which connect the chancre and the adenitis are occasionally the seat of a syphilitic lymphangitis, which is characterized by the presence of small, hard, indolent, knotty cords. Its course is slow and, if purely syphilitic, ends in resolution.

GENERAL SYMPTOMS.

During the primary stage of syphilis there are few symptoms;the patient may suffer from headache,lassitude,etc., but they are not characteristic.The blood may show signs of an anaemia of a chlorotic type.

SECONDARY STAGE.

Secondarysymptoms,if anticipated by treatment,may never appear,and in cases uninfluenced by therapeutic procedure usually develop within eight weeks after the appearance of the primary lesion;in some cases they appear earlier and in others later. The time intervening between the appearance of the primary sore and the development of the secondary symptoms is known as the "SECONDARY INCUBATION PERIOD".

The secondary symptoms consist of a toxaemia and a local hyperaemia of varying intensity;the lesions do not destroy the tissues,but tend to heal spontaneously.During the secondary incubation period the patient may be quite well or,as is often the case,he complains of headache and lassitude towards the end;these symptoms usually indicate the beginning of the secondary stage.Loss of weight and pallor may also occur as the result of the anxiety concerning his condition.In a few cases the line of demarcation between primary and secondary symptoms is as distinct and abrupt as it is between the stages of a specific fever.

A most important point to bear in mind regarding the secondary lesions is their capability of transmitting the disease.

The general consideration of this stage will be discussed under toxaemia and syphilides.

TOXAEMIA.

This is a poisoning of the system by the syphilitic virus,and fever is one of its manifestations.

The fever may be preceded by such prodromal symptoms as pallor,loss of flesh and appetite,restlessness,and headache. When it does occur,it may be of a remittent or continuous type, or it may be only a single,temporary elevation of the temperature.The presence of fever is by no means constant;as a matter

of fact,it is comparatively rare and seems to be more common in women than in men.As a rule,it precedes the syphilides.

In addition to the rise of temperature,there occur generalized pains and an increase of pulse and respirations.Severe syphilitic toxaemia is so rare that,when cases do occur,it is not surprising to find them diagnosed as malaria,typhoid, rheumatism,etc.The occurrence of a syphilide usually settles the diagnosis;but in some cases the syphilide simulates the rash of an acute fever,and renders the diagnosis more difficult than ever.

The toxaemia manifests itself in other ways besides the fever.

Pains in the bones,muscles,joints,etc.,occur in addition to lesions of the skin,viscera,etc.The pains,the fever,the distress,and the worry are all intensified towards nightfall - this being characteristic of syphilis.

SYPHILIDES.

The eruptions on the skin and mucous membranes constitute the most important and characteristic feature of secondary syphilis.The nature and severity of these syphilides are modified by the virulence and dose of the poison,the idiosyncrasy of the patient,and the previous treatment,if any.

The eruptions have a number of characteristics which are important diagnostic features.Their development is progressive and,in the later stages especially,slow;they are polymorphous, i.e.,the eruption is not of the same nature all over:papules, macules,pustules,and crusts may be found at the same time.The absence of pain,irritation,and inflammatory reaction is noteworthy and characteristic,while the colour is usually more or less coppery.The colour is by no means pathognomonic,but it is characteristic.The shape is that of a circle or a segment of a circle,and their symmetrical arrangement,which is due to the fact that the blood-stream distributes the virus,is almost diagnostic.When ulceration occurs,the ulcer is round or oval, has abrupt edges,and presents a dirty base.

Resolution is the usual termination,and,as the lesions are superficial and benign,no scars are left.It is common,however, to get relapses,which,as time goes on,approach the tertiary

type.

As a rule, the first manifestations of secondary syphilis is a syphilide which is macular or papular in nature.

DURATION, etc.

The DURATION of the secondary stage of syphilis is as uncertain as anything can be, and no one can say when it will begin or when it will end. It may never occur, may be transient, or may be prolonged. As a rule, three years suffice for the development of secondary lesions, but secondary symptoms may occur as long as fifteen years after the chancre.

RELAPSES are frequent, and are often due to smoking. Tobacco is to secondary syphilis what alcohol is to the tertiary form of the disease.

The CHARACTER of secondary syphilis is by no means constant, and may vary from a mild attack, which escapes observation, to a severe condition which may affect the entire system of the patient.

TERTIARY STAGE.

It is at this stage that one feels the restriction of the disease into periods. From the moment of infection, when the virus enters the system at the site where later the primary lesion develops, until the last manifestation disappears the changes in the system are continuous. Thus it is that strict periods are not advantageous, and the term "tertiary period" merely indicates the latest manifestations of the disease.

Syphilis, in the tertiary stage, is a constitutional disease in the sense that Hunter employed the term - that is to say, a disease in which all parts of the body may become infected in one and the same way. It extends its manifestations beyond the skin and mucous membranes, and is found wherever connective tissue exists. The transient, superficial lesions of the preceding stage are now succeeded by lesions of a profound character, which do not spare the viscera nay more than the integument. The changes are not simple hyperaemias, as in the secondary period, but are destructive lesions of a malignant nature. They are insidious in onset, slow in evolution, chronic in duration, and diffuse or circumscribed in character. There is no accompanying

febrile disturbance, and ulceration is frequent. The surrounding tissues are invaded and destroyed, and there is no tendency to heal spontaneously.

The lesions are deep, destructive, and malignant, few in number, often single, usually asymmetrical and monomorphous, and distributed in circles or segments of circles. They are more circumscribed than secondary lesions, and their contagiousness is not proved.

Histologically, the lesion is either a gumma or an interstitial sclerosis.

The skin is the seat of a few eruptions of a gummatous nature. The simple gummatous syphilide consists of nodules of a dark colour and of slow evolution; it may be discrete or confluent, and the spreading margin is of a serpiginous character. A cicatrix is left after healing.

The ulcerative gummatous syphilide, described under pathology, is a chronic and painless condition, unaccompanied by inflammatory reaction or glandular enlargement. It often passes unnoticed until it has done irreparable mischief. The cicatrix which occurs after healing is depressed, white, and more or less circular, and may cause deformities when situated on the face.

This syphilide may occur as an echthyma or a rupia. In the former a thick brownish-green crust forms; this crust is adherent to the punched-out ulcer and leaves a rounded, depressed cicatrix. In rupia - a rare condition - the crusts are in the well-known limpet-shell arrangement, and surrounded by an areola. It occurs in debilitated persons.

Other tertiary manifestations are cutaneous and subcutaneous gummata; they develop as nodules of varying size, and ultimately break down, leaving the characteristic gummatous ulcers, which have a circular outline, an excavated appearance, sharply-defined and deep borders, adherent - but not undermined - edges, and a base covered with a caseous mass. They may be single or multiple, and occur most often on the lower limbs. Spontaneous resolution is rare, and cicatrices, which are permanent and depressed and not infrequently pigmented, occur after healing.

The characteristic lesion of tertiary syphilis is the

GUMMA, which may be circumscribed or diffuse, and may affect any part of the body. The description given above shows how the skin is affected and how often ulceration occurs. In the internal organs the gumma has not the outlet that it has in the skin, and inflammatory exudation becomes scar tissue which envelops the gummy mass. Healing takes place by encapsulation or absorption of the gummy mass, and the resulting scar is characteristic.

The microscopical and macroscopical characters of gummata have already been described.

The clinical signs and symptoms caused by these granulomata depend upon the organ affected; the arterial changes which occur in all stages of syphilis reach their highest expression in this period.

When the tertiary period begins, and how long it lasts, are questions that cannot be answered absolutely. Tertiary symptoms may occur at any time after the disappearance of the chancre, but they rarely appear until the first outbreak of secondary symptoms has spent itself. They most commonly make their appearance in the second and third years of the disease, but are by no means uncommon in the first year. In the majority of cases they occur within three to seven years, but they may be delayed for twenty years. The duration is indefinite, as relapses are very frequent.

Alcohol is a most important factor in rousing the syphilitic poison, and in combination with syphilis is probably the cause of many of the diseases attributed to syphilis alone.

PERIODS OF ACQUIRED SYPHILIS.

The syphilographers of old recognized the fact that syphilis had various phases; in the fifteenth and sixteenth centuries numerous physicians had divided the manifestations of the disease into groups.

The first to divide the affection into three periods - the primary, the secondary, and the tertiary - was Ricord, about the year 1856. The first period is characterized by a local sore and glandular enlargement, the second by general constitutional symptoms, and the third by arterial and gummatous lesions.

This division into periods is to some extent arbitrary, but for the most part it accords fairly well with clinical

observations,and none can deny its convenience for descriptive and therapeutical purposes;it has no claim,however,to scientific accuracy - for,as in all other infective diseases,the signs and symptoms of the various stages often coexist and blend insidiously and insensibly with one another.The primary lesion is definite,but beyond this all is variable.Secondary lesions may escape notice,tertiary lesions may occur before the secondary or accompany them,a lesion may be on the border-line, and tertiary lesions may never occur.

Virchow (Lancereaux.- Treatise on Syphilis,Vol.i.) showed that the pathological process was the same in all stages,and that periods did not exist pathologically.Thus there is no such thing as a purely secondary or tertiary period of the disease; and these terms are merely symbols to express the quality of certain lesions.

HEREDITARY SYPHILIS

The disease is acquired in utero,and is the expression of severe infection of the foetus caused by recent syphilis in the parents.The gravity of syphilitic manifestations in the foetus is due to specific changes in the viscera.As opposed to acquired syphilis,the typical lesion of early hereditary syphilis is found in a diffuse cell-proliferation having its origin in the perivascular connective tissue of the smallest blood-vessels, and for this reason one rarely sees a soliary syphiloma in the infant.In the adult syphilis localizes itself here and there in small areas,and shows a special affinity for the skin and mucous membranes,and later for the nervous system; but in the foetus the chief localizations are in the viscera,and secondarily in the bones.The diffuse nature of the lesion contrasts strikingly with the circumscribed visceral involvement in the adult.

Hefeditary syphilis causes more constitutional disturbance, the acute symptoms run a more rapid course,and the disease is more often fatal than acquired syphilis;the changes occur in actively-growing bones more frequently and affect more bones, and the skeletal changes are more often permanent.

Clinically,there are two varieties of hereditary syphilis,

early and late;and each will be considered separately and briefly,as this work is concerned chiefly with the acquired form of the disease.

(a) EARLY HEREDITARY SYPHILIS.

The majority of cases of hereditary syphilis show manifestations of the disease in early life;as a rule, symptoms occur within the first month.Early hereditary syphilis bears the same relation to late hereditary syphilis that secondary acquired syphilis has to the tertiary symptoms of the acquired disease.

Wasting is a characteristic feature of the affection,and may commence a few days after birth. The EMACIATION in severe cases is so extreme that the skin becomes loose and wrinkled, and the child assumes an aged appearance.

This is a comparatively common condition in hospitals,and is frequently seen in the Leeds Union Informary.In cases of emaciation in which the weight is not regained in a months, syphilis should be suspected.

The LYMPHATIC GLANDS are enlarged,but not so characteristically as in adults,being replaced by enlargement of the liver or spleen or both,which is very early appreciable.

In addition to the wasting, GASTROINTESTINAL and PULMONARY AFFECTIONS often occur,and,when accompanied by a rise of temperature,may mislead the physician.Bronchitis,diarrhoea,or pneumonia have been present in most cases observed by the writer In the Leeds Union Infirmary.

One of the earliest and most prominent symptoms of this disease is RHINITIS,which consists of an inflammation of the nasal mucous membrane,especially of the inferior turbinates, accompanied by hypertrophy.It begins with a swelling of the nasal mucous membrane,but later there occurs a blood-streaked purulent condition,which has a tendency to form crusts.The thickened mucous membrane causes difficulty in respiration and interferes with nursing.The condition produces a characteristic snuffling sound to which the name of "SNUFFLES" has been given. This sound is of great assistance in diagnosing a case of hereditary syphilis,but undue importance must not be attached

to it. The rhinitis may go no further than the stage of swelling without any pus formation, or it may lead to ulceration, and even to the involvement of the cartilage and bone of the nose, with resulting deformities. The nose may be like that of a pug-dog or assume a saddle shape.

The CUTANEOUS LESIONS in hereditary syphilis are characteristic; some appear to be peculiar to it and do not occur in the acquired form, e.g., pemphigus and a diffuse infiltration of the skin. The circumscribed lesions are practically the same in both hereditary and acquired syphilis, but the diffuse infiltration gives the skin a characteristic appearance in hereditary syphilis. Soon after the appearance of the nasal symptoms the skin of the face assumes a peculiar yellow tint, and is sometimes glossy. This is not so much due to insufficient blood-supply as to infiltration of the Malpighian layer of the skin. The skin assumes a deeper colour later, especially in the cheeks and chin.

The diffuse lesions of the skin are of three kinds: (1) the erythematous, which occurs on the soles of the feet and the palms of the hands, but may occur elsewhere - disappearing on pressure and varying in colour from cherry-red to bluish-red; (2) the desquamative, in which the horny layers desquamate and the skin is thickened; and (3) the eroded, which includes all ulcerated, oozing, or moist eruptions.

These eruptions usually occur during the first three months.

The circumscribed eruptions include macules, papules, pustules, and bullae. All, except the last, are similar to the acquired syphilitic varieties.

The bullous eruption is called "syphilitic pemphigus," and must now be considered. It begins as a congestion producing a darkened circle, and sometimes a papule, and soon a bulla, will form. These vesicles are of varying size, and may be as large as a penny; the contents consist of a purulent or bloody fluid. The thin covering of epidermic soon breaks down, and an ulcer forms. This eruption occurs during the first ten days of life or is present at birth, and usually is indicative of a fatal result.

The palms of the hands and thesoles of the feet are first involved, but it may spread to other parts later.

As in acquired syphilis, echthyma and pemphigus and rupia occur. Fissures are apt to develop when the circumoral region is involved, and characteristic permanent scars remain.

The MUCOUS MEMBRANES, except those of the nose and mouth, are rarely involved in hereditary syphilis in the early stage.

The LIVER is often affected in foetal syphilis, and the usual change is an interstial hepatitis. The organ is enlarged, hard, elastic, rounded in its margins, and heavier than normal. On section, it is pale-yellow and resistant to the knife. Jaundice and ascites do not occur as a result of this hepatitis.

Enlargement of the SPLEEN is common, and it occurs early. The w r i t e r has found enlargement of the liver and spleen in most of the cases he has examined post-mortem.

The other organs that are involved in hereditary syphilis are the LUNGS and KIDNEYS. The former is not frequently the seat of any gross lesion, but "white pneumonia" and gummata are said to occur. The kidneys are not uncommonly involved with a diffuse infiltration.

Visceral lesions are not usually the cause of any symptoms, although they are found frequently after death.

The OCULAR LESIONS of hereditary syphilis in its early stage consists of iritis and choroiditis. The former affection is much less common than in the later stage, and is usually slight. In the latter condition examination by means of the ophthalmoscope reveals small spots of exaudation and alteration in the outline of the vessels.

The NERVOUS SYSTEM is subject to the same changes as occur in acquired syphilis. The chronic meningitis that occurs may be accompanied by hydrocephalus, which rarely causes the enlargement of the head found in non-syphilitic conditions.

Severe nervous symptoms of an eclamptic nature sometimes occur; and Finkelstein (Pfaundler and Schlossmann.- Diseases of Children) says that they may be due to a temporary outpouring of hydrocephalic fluid.

The brain substance itself may be the seat of inflammatory changes. The cerebral arteries are affected with an endarteritis,

which causes thrombosis and may lead to softening of the brain, etc. Clinical evidence of involvement of the cord has not yet been brought forward.

Changes in the BLOOD, which consist of a diminution of the red blood-corpuscles and haemoglobin and an increase of the white cells, have been found - especially when the eruptions are present.

The BONES are involved almost as frequently as the skin, and those portions that grow most rapidly attract the syphilitic poison; thus it is that the most important and frequent changes occur in the epiphyses of the long bones. The condition is known as the "osteo-chondritis of Wegner"; and the changes consist of proliferation of the cartilage cells, calcification with delayed delayed ossification and necrosis of the cartilage cells, on account of the interference with the blood-supply. The result of these processes is deformity and at times a pseudoparalysis.

The cranial bones are frequently affected with periostitis, which results in the formation of nodes giving to the skull a characteristic natiform appearance.

Onychia, causing a claw-like nail, is common and not infrequently associated with paronychia.

(b) LATE HEREDITARY SYPHILIS.

The active lesions that occur in late hereditary syphilis are similar to those that occur in late acquired syphilis, but some of the lesions are more common, e.g., affections of the EYE. Children showing the lesions of late hereditary syphilis usually give a history of "snuffles" in childhood, but this is not always the case.

GUMMATA are occasionally seen in the SKIN, but they are not common.

The PERIOSTEAL CHANGES are more diffuse than in acquired syphilis, sometimes affecting the entire length of the bone. This diffuse process is more common in the tibia, to which it imparts a peculiar and pathognomonic form. The shaft of the bone is thickened in all its diameters, but especially ante ro-posteriorly, and there is no deviation in the axis of the bone. It is

called the "sabre-tibia".

Interstitial KERATITIS is one of the best recognized of the later manifestations of hereditary syphilis, and is most common about the age of puberty. One eye is usually involved before the other is attacked. It begins with an opacity in the cornea, and is without pain; this opacity increases in extent until the cornea has a ground-glass appearance, and pericorneal injection becomes marked. The cornea soon becomes pink from an ingrowth of blood-vessels, and resolution, as a rule, begins when this occurs. The process is very slow, and it may never completely disappear. Photophobia and dimness of vision are the usual subjective symptoms.

RETINITIS, of the ordinary character, sometimes comes on about the age of twenty-one, and IRITIS is comparatively common.

The DENTAL STIGMATA of hereditary syphilis are due to arrested development of the teeth in the process of formation. The permanent teeth show remarkable changes. Jonathan Hutchinson first drew attention to them, and he describes the condition thus: "The characteristic malformation of the upper central incisors consists in a dwarfing of the tooth, which is usually both narrow and short, and in the atrophy of its middle lobe. This atrophy leaves a single broad notch in the edge of the tooth; and sometimes from this notch a shallow furrow passes upwards on both anterior and posterior surfaces nearly to the gum. This notching is usually symmetrical. It may vary much in degree in different cases; sometimes the teeth diverge, and at others they slant towards each other.....It is only in the permanent set that any peculiarities are observed. The first set are liable to premature decay, but are not malformed."

DEAFNESS is an important complication in hereditary syphilis. It may occur at any time without any warning; and it is to be noted that sudden deafness is suggestive of syphilis.

ARTICULAR LESIONS are of the genuine syphilitic type, and there may or may not be involvement of the bone. The knees and shoulders are most often affected. The class which has no bone involvement is usually affected with a synovitis, which resolves without impairing the function of the joint. When the bone is

involved the condition is more serious, and permanent lesions occur.

The other lesions of hereditary syphilis are not peculiar to it, and they need not here be described.

Stigmata of Hereditary Syphilis.

The chief stigmata of hereditary syphilis are Hutchinson's triad, bone stigmata and skin stigmata.

The BONE STIGMATA are found in the skull - bosses, asymmetry and irregular development, and hydrocephalus; in the nose - sunken bridge; in the tibia - "tibia-sabre".

The DENTAL STIGMATA are Hutchinson's teeth; the AURAL, deafness; and the OCULAR, interstitial keratitis.

The SKIN STIGMATA are the rhagades.

ANALYSIS OF THE SYMPTOMS.

TEMPERATURE.

The fact that syphilis is not an apyretic disease did not escape the attention of the early syphilographers, and numerous instances of syphilitic fever have been recorded.

The observers of the first half of the nineteenth century were numerous, and their results proved undoubtedly that fever in syphilis was sometimes present.

Lancereaux (Treatise on Syphilis, Vol. i.) tells of numerous instances in which fever was a feature, and states that Swediaur, Hecker, Ricord, Bassereau, and others were fully aware of the condition. In this country the first to observe and study syphilitic fever was Duffin of London.

Syphilitic fever occurs in a number of cases, and the number so affected would be increased were the thermometer used more frequently. The present opinion is that the majority have no febrile symptoms and pass through secondary syphilis without knowing they are ill. The minority, however, are aware of the fact and have some degree of fever; in some it is so slight that it passes unobserved, while in others it is an outstanding feature, and cannot be overlooked. In private practice an elevation of temperature in syphilis is not so common as in hospital service.

Oct.

Clinical Chart of the case of Charlotte Jenkins, aet. 28. Syphilis: Pregnant

DATE	11	12	13	14	15	16	17	18	19	20	21
Pulse. m	64	86	98	90	88	90	86	85	80	80	90
Pulse. e	64	85	100	80	80	80	80	86	80	86	80
Resp. m											
Resp. e											
URINE No. of ozs											
URINE Sp. Gr.											
URINE Reaction											

TEMPERATURE FAHRENHEIT'S SCALE. 106 105 104 103 102 101 100 99 98 97 96

Nov.-Dec.

Clinical Chart of the case of Emily Dixon, aet. 14. Syphilis.

DATE	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Pulse. m	40	42	88	86	90	86	96	80	44	42	42	42	40	43	40	43	84	44	44	42	44
Pulse. e	90	44	98	90	96	88	95	96	80	40	40	46	80	44	42	48	86	40	43	46	44
Resp. m																					
Resp. e																					
URINE No. of ozs																					
URINE Sp. Gr.																					
URINE Reaction																					

TEMPERATURE FAHRENHEIT'S SCALE. 106 105 104 103 102 101 100 99 98 97 96

Dec.-Jan.

Clinical Chart of the case of Annie Chambers, aet. 14. Syphilis.

DATE	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7
Pulse. m	99	88	86	48	84	84	84	86	86	86	86	86	84	80	80	96	86	96	100	96	110
Pulse. e		90	80	80	80	80	80	84	88	84	84	80	84	84	96	96	104	96	104	98	96
Resp. m																					
Resp. e																					
URINE No. of ozs																					
URINE Sp. Gr.																					
URINE Reaction																					
URINE Chlorides																					
URINE Albumen																					
URINE Sugar																					
Bowels.																					
Remarks.																					

TEMPERATURE FAHRENHEIT'S SCALE. 106 105 104 103 102 101 100 99 98 97 96

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Fournier affirms that he has found a rise of temperature in 33 per cent.of his hospital cases,and rarely amongst the better classes.

The degree of the fever is a variable quantity;it may be merely 99.F.or may reach 100.F.The most common temperature is between 99.and 100.F.;but 102.is not uncommon,and 104.F.occurs now and again.

Guntz (Lancereaux.- Treatise on Syphilis,Vol.i.) has made numerous and careful observations,and found that the usual temperature in febrile cases was 100.4.F.;in the more severe cases he observed a temperature of 101.8.F.

An increase of the pulse- and respiration-rates is usual along with the fever,but it is not marked.

The variety of the fever is not constant.There may be only a slight elevation of temperature,or the fever may last for some time and be continuous or remittent.

The accompanying CHART (I) shows practically a single elevation occurring in a syphilitic woman who was pregnant.CHARTS II. and III.show the common type - a slight evening rise with a a morning remission.This remittent type is the usual,and the evening rise is rarely above 101.F.

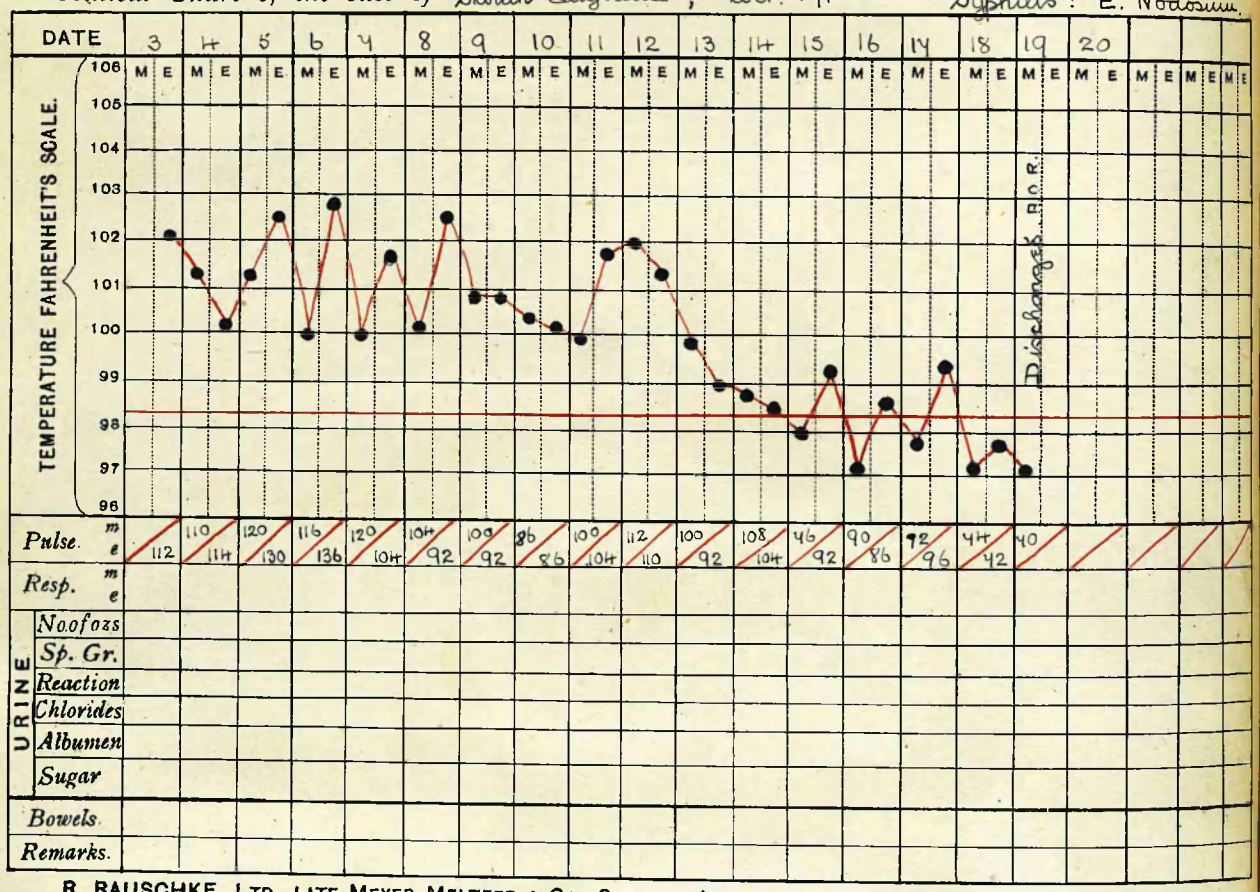
"Continuous fever" occurs now and again,but is comparatively rare; Fournier (Marshall.- Syphilology) calls it"syphilitic typhose".It usually lasts a few days only,but may continue for weeks.If accompanied by headache,backache,nausea,etc.,it may be mistaken for smallpox - especially if no syphilide is present.Some cases are prolonged,and the temperature and symptoms closely simulate typhoid.

Some observers have reported cases of undoubted"intermittent syphilitic fever"; Lancereaux (Syphilis,Vol.i.) states that genuine intermittent fever occurs,and that Cazenave and others agree with him. These cases may simulate ague very closely.

"Secondary syphilitic fever" occurs,as a rule,from the third to the eighth month,and is more common in women than in men. In the Leeds Union Infirmary the temperature in syphilitic cases is taken more systematically in women than in men,and consequently rises of temperature are found more

March

Clinical Chart of the case of Sarah Ingram, *act.* 19. Syphilis: E. Nodosum.



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frequently in females. A few cases of fever of moderately severe type have been seen in men, but, unfortunately, the records are not complete.

The two weeks preceding the appearance of secondary syphilides are the weeks that have the fever, which in most cases is mild, and lasts from three to ten days. The temperature usually falls with the appearance of the eruption, and the fall may be sudden or gradual. Each outburst of a syphilide may be accompanied by fever. In some cases, where articular lesions are present at the same time, rheumatic fever is clearly simulated.

It is interesting to note that Hunter compared syphilitic fever to rheumatic fever. As a matter of fact, any acute fever may be simulated.

The symptoms that frequently accompany the rise of temperature are pains and malaise, and in epidemics of influenza many cases are undoubtedly diagnosed as such.

Keyes (Syphilis) says that Boulimia sometimes occurs and is pathognomonic.

CHART IV. is that of a patient suffering from erythema nodosum and syphilis; the former was probably syphilitic in character.

Late Syphilitic Fever.

Cases, in which fever has been a feature of the tertiary stage have been observed. The cause of the fever is unknown, its type is irregular, its course is chronic, and it is amenable to mixed treatment. It may be more common than is supposed, but at present it is one of the mysteries of syphilis.

CUTANEOUS LESIONS.

GENERAL CONSIDERATIONS.

The cutaneous lesions of syphilis are due to changes in the small blood-vessels, which cause a perivascular infiltration of varying degree. The pathological lesion is the same in all cases, but the result differs, and thus the various kinds of SYPHILIDES are produced. The exciting cause of the pathological changes is the spironema pallida; but there are certain predisposing causes, such as local irritation, the presence of

other lesions, bad circulation, dirt, and debility.

The syphilides are numerous and dissimilar, but they, nevertheless, have certain general characteristics, which are more or less constant and serve as diagnostic adjuvants.

As a rule, the eruption is slow and progressive in its development. This, however, is not absolute, as some of the syphilides develop rapidly. The earlier and the more generalized the eruption the more rapidly does it develop: this seems to be a fairly constant rule. The slow evolution is exemplified by the late lesions, which usually take a week or two to manifest their true character. The progressive nature of the development is more characteristic; this is an almost constant feature and of considerable clinical importance.

A characteristic, but not pathognomonic, feature of syphilides is their polymorphism, i.e., various forms of eruption are present at the same time. It is not uncommon to find macules, papules, and ulcers on the same individual.

The eruptions tend to assume a coppery colour. This doubtless occurs very frequently; but it is not invariable, and may be seen in eruptions which have no relation to syphilis. It is not justifiable to diagnose a skin disease as syphilitic on account of its coppery colour, but such a tint, in conjunction with other signs, is of great value.

A valuable characteristic of syphilides is the fact that they cause neither itching nor pain. Adventitious inflammation, it must be remembered, causes pain; and a slight amount of itching, when the eruption is on the scalp, has to be discounted, as it occasionally occurs. The French say that the syphilide is "a froide."

Every syphilide is composed of circular lesions, which are discrete or confluent; it tends to spread in the form of a circle or the segment of a circle.

The scales are thin, white, and not adherent and, when removed, do not expose a bleeding surface. The crusts nearly always have a greenish tinge, and cover more or less characteristic ulcers, which are round or oval in shape and have abrupt edges, being also painless. The edges are hard, usually adherent and not undermined, and the base is covered with a

false membrane.The scars are rounded,thin,smooth,depressed, shiny,and not adherent to surrounding structures,and are more or less pigmented.The pigment is temporary,but may persist for years.

Secondary syphilides are the most important manifestations of secondary syphilis,as it is impossible to diagnose the disease,when the chancre is not present,until they appear.They simulate all forms of skin disease,but never create an original.The diagnostic features of secondary syphilides are numerous and important.

The lesions are benign,superficial,and resolutive.These points distinguish any secondary syphilide from a tertiary,and are best exemplified in the roseola;but it must be noted that some secondary syphilides are rebellious to treatment.

They are symmetrical and irregularly distributed.No matter the situation,the same place on the opposite side of the body is affected.

Secondary syphilides are multiple.It is rare to find one composed of a single element.

Polymorphism is a characteristic of secondary eruptions, especially in the early ones.

Tertiary syphilides also present diagnostic features.They are deep,destructive,and malignant;they are practically never symmetrical.As a rule,the lesion consists of a few elements and is monomorphous.The eruption persists,tends to remain indefinitely,and leaves permanent scars.At the present time the contagiousness of secondary syphilides has been proved, but that of the tertiary is still sub judice.

SECONDARY SYPHILIDES.

ROSEOLA.

The roseola or erythematous syphilide is usually the first indication that the secondary stage of syphilis has commenced.It is one of the most common eruptions of the secondary period,and is usually in evidence about the eighth week of the disease.The regions that are the most involved and first affected are the loins,flanks,and sides of the chest;as a rule, the hands and feet are exempt.It is composed of circular or

crescentic, rose-red, erythematous patches, varying in size from a pinhead to a pea. These patches have irregular edges, are usually discrete though sometimes confluent, and are not elevated above the level of the surrounding skin. The pathological condition is the first stage in the development of a papule, and occasionally a papule is formed, thus causing a polymorphous eruption.

The rash is often very faint, and may easily escape observation in some cases. The patient may not be aware of its presence, as there is no itching and no pain. The colour is red at first, but later on becomes darker.

The development is usually slow and progressive, the duration from one to six weeks, and the termination resolution.

Relapses occur now and again, and differ from the primary attack in having larger and fewer patches.

PAPULAR SYPHILIDE.

The papule is the basis of all secondary syphilides, and the various secondary cutaneous eruptions are merely modifications of the same pathological condition. A papule is the result of a perivascular cell-infiltration, and is a protuberance of greater or less size, hard, dry, sometimes scaly, and terminating in resolution. The size varies very much in the same individual, but it is seldom larger than a small pea; the surface is tense and shiny, and the shape is absolutely and characteristically circular. The colour is pink in the early stages, but later on a darker colour is assumed. As already mentioned, it may accompany a roseola.

The papular syphilide occurs during the third month of the disease, and is a common eruption in the trunk, being either generalized or scattered in patches. It is a chronic condition, and slowly declines, leaving superficial spots, which may be pigmented.

There are two varieties of principally of the true papular eruption - the flat and the miliary.

(1) The flat papule is smooth at first, but usually becomes scaly and rough, of a dark colour, and of firm consistence. The scale is easily removed and covers a dry surface; as the condition

SQUAMOUS SYPHILIDES:

Nearly all syphilides pass through a desquamative stage at one time or another. In this condition, which is a distinct syphilide, the desquamation is truly syphilitic in character, and is not a secondary degeneration. The eruption may be generalised or localised to the soles of the feet and the palms of the hand.

The generalised variety may occur as a diffuse syphilitic psoriasis or as a circinate eruption. The character of the eruption is the same in each, and both may be seen together on the same patient. The patches vary in size, attaining their maximum in the circinate form, are of a coppery colour, and are only slightly elevated above the surrounding skin. The scales are thin, not adherent, white, and not imbricated. The scales usually fall off in a few weeks and are sometimes replaced by other scales, and thus several desquamations occur.

The circinate form has a circular distribution. It starts as reddish-brown spots, which form circles or segments of circles, and lasts for a few weeks or a month or two.

The trunk, the limbs, and the face are the usual seats of the generalised squamous syphilide. There is neither pain nor itching, and the patient is only concerned on account of its presence.

The palms and soles are often affected with a localised squamous syphilide, but the former are more frequently affected than the latter. The syphilide in these situations is a late secondary lesion and may be unilateral or bilateral. It is often circinate in character and is purely scaly. The patches are elevated, more or less circular, of a coppery colour, and may become fissured or ulcerated. As a rule, the scales are superficial, but, sometimes, they become heaped up and form a callus. The writer has seen one case of the latter on the sole, and a deep ulcer was left when this callus was removed.

VESICULAR SYPHILIDE:

This syphilide is the result of an exudation of serum raising the epidermis covering the papule, and may be regarded as a step towards pustulation. The epidermis soon ruptures and a crust results. It is a chronic condition, tends to resolve, leaves temporary cicatrices, and usually co-exists with other syphilides.

advances, the scale disappears from the summit of the papule, leaving a white colour round the latter.

The spots do not tend to form bunches, except in the neighbourhood of the sebaceous glands - for example, on the forehead, where the resulting condition forms the so-called "corona Veneris". They occur about twelve weeks after the chancre, and may succeed a roseola or occur independently. The development is sometimes slow and progressive, and sometimes rapid.

After lasting for a variable period - weeks or months - the papules fade and leave insignificant scars.

(2) The miliary papular eruption is not so common as the flat variety. The papules and conical and firm, vary in size from a pinhead to a grain of rice, are bright-red at first and then darker, and are disseminated or in groups. The eruption is connected with the hair follicles, and is most abundant on the trunk. It may occur as the corymbose or herpetiform rash; the former consists of one large papule surrounded by smaller ones, and the characteristic of the latter is a depressed scar.

PIGMENTARY SYPHILIDE.

The pigmentary syphilide is not common, and is found in women more frequently than in men. It usually affects the back and sides of the neck, where it is called the "collar of Venus", but it may occur elsewhere. It consists of non-prominent spots, with irregular edges and of variable colour; it occurs singly or in groups. The skin has the appearance of coffe and milk. It occurs about the same time as the papular eruption, and is not accompanied by heat or itching. The course is chronic and the cause uhknown. Various theories have been advanced as to its origin (see Pathology).

Pigmentation not infrequently follows many syphilides; but it is more pronounced than the pigmentary syphilides, and occupies the same neighbourhood as the eruption it succeeds.

SQUAMOUS SYPHILIDES. (see opposite).

This syphilide is the result of an exudation of serum raising the epidermis covering the papule, and may be regarded as the step towards pustulation. The epidermis soon ruptures, and a crust results. It is a chronic condition, tends to resolve, leaves temporary cicatrices, and usually coexists with other

syphilides.It may be herpetiform and consist of numerous small vesicles,about the size of a pinhead,which are often confluent and come out in successive crops.The limbs and trunk are frequently affected,and the distribution is irregular.

Some cases resemble chickenpox and smallpox eruptions.The vesicles are round and flattened,and occur on the trunk and face.There is usually a dark-red areola surrounding each vesicle,and fever may be present.The vesicles rapidly become pustules,which dry up and form crusts.It is a rare condition,and usually exists with other syphilides.

Acne may be simulated.Small dark-red papules,which become vesicular and often papular,occur.Crusts form very quickly.The condition is common on the scalp and other hairy parts;on the scalp it is frequently the result of secondary syphilis,and corresponds with the papular eruption elsewhere.The resulting cicatrices are round or oval,white,and depressed.It practically never exists alone.

PUSTULAR SYPHILIDE.

The pustular syphilide is not a common secondary lesion and,generally speaking,is excited by dirt and debility. It is therefore regarded as an evil omen.The syphilitic process is complicated by the presence of pyogenic microorganisms, which cause pustules with subsequent ulceration.There is always a papular base to the pustular element.The pustule soon ruptures,and a round or oval,shallow,crusted ulcer remains.

The pustules may exist with other syphilides,but the most important pustular lesions imitate certain non-syphilitic eruptions.

The impetiginous syphilide is a mild pustular lesion which occurs chiefly about the face and scalp.The pustules are scattered,and are surrounded by an areola; they are superficial,and soon dry to form crusts.The ulcer seen on removing the crusts, which are friable and brownish,is shallow.The cicatrix is usually pigmented.

A more advanced stage forms syphilitic echthyma.The lesions are larger than those of syphilitic impetigo,and are more often found on the lower half of the body.The crusts are dense and

adherent, and cover a typical, although superficial, syphilitic ulcer.

Rupia is even a more advanced stage than echthyma, and is a late secondary syphilide. It is a characteristic eruption of syphilis, and its distinguishing characteristic is the crust. The first crust is elevated by a layer of scab beneath it, and, as the process goes on, a prominent, stratified, rough, limpet-shell crust is formed. The crust may become exceedingly large before it finally falls. The ulcer beneath the crust is fairly large. The resulting cicatrices are large, round, and pigmented. The condition is due to dirt, debility, or insufficient treatment.

Some of the vesicular lesions could be described under the heading of pustular syphilides, because pustulation often occurs soon after the formation of the vesicle; but, as there is undoubtedly a vesicle, it is best to include them among the vesicular syphilides.

CONDYLOMA.

The condyloma is merely a papule modified by its surroundings, and is the homologue of the mucous patch which occurs on the mucous membrane. It is found where the skin is moist and in folds, and therefore is common on the genitals, about the anus and vagina, and in the axillae and groins. The epidermis covering the papule becomes sodden, on account of the moisture, and erosion and ulceration supervene. The name "papulo-erosive syphilide" has been given to it on this account.

The lesion is bathed in its own secretion and rapidly hypertrophies. It is soft, flat, sessile, grayish, elevated and very contagious. There is a foul discharge, and, unless fissured or ulcerated, there is neither pain not itching. Each condyloma is circular in outline, covering a small area; but, by coalescing, they become much larger, and may be two inches in diameter. They spread laterally or perpendicularly, and may be as broad as described, or may project half an inch or more above the level of the skin. As they heal they become dry, crusts form, and pigmented marks are left.

Sometimes they are accompanied by fever and adenitis. Condylomata are common, occur early, are characteristic of syphilis, and along with mucous patches are the most contagious of all

syphilitic lesions.Relapses are frequent.

TERTIARY SYPHILIDES.

SIMPLE GUMMATOUS SYPHILIDE.

The foundation of this lesion is a nodule of dark-red colour,and of varying size.The nodule is tense and shining,hard,and embodied in the skin.The eruption may be disseminated or in groups.The former may be generalized or confined to a particular region,and the tubercles are usually small.A single nodule may constitute the whole condition. The grouped variety may be discrete,confluent,or in masses. The nodules appear in successive crops,and one sees different stages of their evolution.The size is usually larger than that of the former variety,but is not larger than a shilling.

The course is chronic,and the extending margin may be serpiginous.The face and limbs are the usual sites.A depressed cicatrix results after healing,and the absence of ulceration is the important point.

ULCERATIVE GUMMATOUS SYPHILIDE.

This variety includes many lesions,but they have certain features in common.The nodules are small to begin with, but soon become relatively large and ulcerate; they may become serpiginous,and they may assume a phagedenic character.

The course is chronic,painless,and not accompanied by inflammation or adenitis.The number of nodules varies from one to a larger quantity.

It may resolve spontaneously,but this is uncommon,and the persistence is remarkable in untreated cases.The resulting scars are characteristic,and are white,depressed,more or less circular,composed of tough tissue,and often non-adherent.

The condition may assume the characters of echthyma,when it occurs in dirty and debilitated subjects.The pustules are evanescent and soon break,resulting in a scab adhering to a typical punched-out ulcer.

Rupia, with the same characteristics as secondary rupia, may occur.

The ulcer that results from this lesion is characteristic. It is rounded or oval,with abrupt edges sharply cut;the base is

covered with a yellowish membrane. The edges and base are usually hard, and the former are adherent and not undermined. It is not accompanied by pain, and it does not bleed easily.

CUTANEOUS GUMMATA.

These are only a further stage of the gummatous or tubercular syphilide. Gummata vary in size from almost microscopic bodies to large tumours; they are hard at first, but soon become caseous and form ulcers which are of a circular shape, excavated, etc., as described above. Cutaneous gummata may be single or multiple, and are most common in the lower limbs. They may terminate spontaneously or extend slowly and destroy the tissues encountered. They are similar to the subcutaneous gummata in many respects.

SUBCUTANEOUS GUMMATA.

These are very common, and ulceration usually results. Though commonly single, they may be multiple and, in the latter case, are grouped or disseminated. The most common situation for them is the leg, but they may occur anywhere. They are hard, painless, and at first movable, but soon undergo caseation, perforate the skin, and form the typical ulcer described above. After healing, a permanent, thin, rounded, depressed, pigmented scar is left.

Each gumma begins as a hard, insensitive, subcutaneous lump, which is freely movable under the skin and not adherent to the surrounding tissues. It may remain in this condition for months, but it usually progresses slowly and involves the skin, which becomes red and tense. The centre then undergoes caseation, and the softening of the gumma finally reaches the surface. Fluctuation may be determined, and tenderness on pressure is common. This tenderness is in marked contrast to the insensitiveness of other syphilides. The skin is perforated sooner or later, and the final result is the gummatous ulcer.

When two or three gummata are situated near one another, they may become confluent and progress irregularly; in one place there may be softening, in another ulceration, and in another a cicatrix.

The gumma may heal at any stage of its development; if it heals soon after it commences, the skin remains normal: if

after caseation, the skin is involved:if after ulceration, the typical syphilitic scar results.

HEREDITARY CUTANEOUS LESIONS.

The cutaneous lesions that occur in hereditary syphilis are more or less characteristic of the disease;some appear to be peculiar to it,while others are the same as occur in acquired syphilis.It must be remembered that the skin of young children,especially those who are ill-nourished,is very liable to irritation;and the part that irritation plays in the production of syphilitic eruptions is difficult to estimate.

The cutaneous lesions are circumscribed or diffuse,polymorphous,and generally situated about the genitals,buttocks, and face.The scalp,arms,and legs are commonly exempt.Confluence is much more common than in acquired syphilis,and is due to the tenderness of the skin and the difficulty of keeping it clean. The circumscribed eruptions are analogous to the acquired skin lesions,but the diffuse skin infiltration which occurs gives the integument a characteristic appearance.Soon after the nasal symptoms begin,the skin becomes yellowish from the infiltration of the Malpighian layer,and later on assumes a darker colour on the cheeks and chin.

Diffuse Lesions.

ERYTHEMA.

This eruption occurs most frequently on the palms and soles,but may occur elsewhere,especially when the skin is subject to irritation.It disappears on pressure and varies in colour from a cherry to a bluish-red.It may or may not be associated with papules.

DESQUAMATIVE LESION.

This is really a papular eruption with more thickening of the epidermis than usual.The horny layers desquamate in large patches.It occurs on the palms and soles.

Circumscribed Lesions.

PEMPHIGUS.

This is one of the earliest and most fatal lesions of hereditary syphilis. It may occur before birth or

during the first three weeks of life. Its typical situation is on the palms and soles, but it occurs on other parts of the body as well. The eruption consists of large papules, which are covered with blebs containing pus or blood. The bulla varies in size, and may be as large as a walnut. Very often the bullae become confluent. The thin covering of the eruption soon ruptures, and blackish scabs, covering ulcers of varying size, result. The presence of this lesion usually indicates death. The bullae appear insuccessive crops and leave rounded cicatrices.

PUSTULAR LESIONS.

These lesions commonly occur as syphilitic echthyma and syphilitic impetigo. The former lesion occurs in badly-nourished and neglected children, and is of serious import. It occurs chiefly on the limbs, and is composed of blackish crusts, resulting from pustules, surrounded by an areola. The scab covers a deep ulcer with perpendicular edges.

Syphilitic impetigo occurs on the hairy parts of the body, and is generally seen in the face. The pustules are numerous and tend to run together, but soon dry and form prominent crusts, which have a copper-coloured areola and cover ulcers of varying size.

Nodular or tubercular lesions of the skin in cases of hereditary syphilis do occur, but they are by no means common. The tubercle is rounded, and, after a time, ulcerates.

ALOPECIA.

The syphilographers of the time of the great epidemic did not mention the occurrence of alopecia at the onset of the outbreak, but that was probably due to neglect, as they were doubtless too much taken up with other manifestations of the disease. It was not long, however, before the condition was discovered, and it has ever since been a well-known symptom. There is probably no other secondary manifestation that is so much feared by the subjects of syphilis as alopecia, and, yet, it is one of the least important. It occurs frequently, and the association of the skin with the hair doubtless renders the condition liable to occur. As a rule, the lesion occurs in the early stages of the disease; but it may be a late manifestation,

and then it is usually secondary to lesions of the scalp and cranium. The male sex is as frequently affected as the female.

The cause is unknown, but various theories have been propounded. Some say it is due to an eruption on the scalp, and others attribute it to anaemia; Sabouraud (Atlas of Dermatology) says it is produced by a toxin causing atrophy of the papillae and death of the hair.

In addition to being a primary lesion, it may occur as the result of other lesions.

It may be associated with premonitory headache. The hairy scalp is its usual situation, but it may affect any hairy part. The hair becomes dry, loses its brilliance and elasticity, and turns brittle. The pigment may be lost, and the hairs are easily detached.

It occurs in three varieties. The first is a general thinning, and is usually temporary. This occurs more or less in nearly all cases of syphilis. The secondary variety is a patchy condition; the hair falls out more profusely in some parts than in others, and the result is a moth-eaten appearance, which is almost diagnostic. The third and most severe variety is the production of bald areas; the baldness is not absolute, as there are usually a few hairs left. The spots are of an irregular shape and the skin is normal, except in secondary alopecia.

It must be remembered that alopecia is not peculiar to syphilis; it occurs after certain fevers. The syphilitic condition lasts from one to many months, and rarely affects the upper and middle parts of the cranium exclusively, as is sometimes the case in baldness due to other causes.

AFFECTIONS OF THE NAILS.

Syphilitic affections of the nails are common, and, when it is considered that the nails are mere appendages of the skin, one cannot be surprised at the frequency of the affection. The changes are most commonly found in modifications of the matrix, which may present most of the secondary syphilides, but the nails may be involved secondarily to parohychia, which spreads to the matrix and then to the nails.

ONYCHIA occurs in four forms. The first is atrophic onychia, and in this case the nail becomes thin and brittle, and

is easily broken; it may be more severe, and the nail is then thickened at the corners and may be corrugated. The nail is constantly breaking and being torn away from its bed. The more severe form is usually due to paronychia, and is not peculiar to syphilis. The second and third varieties are uncommon, and consist of partial and total separation of the nail, respectively. The fourth form is hypertrophic onychia, which is the most uncommon of all, and the lesion is a thickening of the nail. It may be stated that syphilitic onychia is a thinning of the nail accompanied by brittleness and raggedness.

PARONYCHIA is more common than onychia, and presents itself in three forms - dry, inflammatory, and ulcerative. In the dry form there is some degree of swelling of the bed of the nail, of a chronic nature and unaccompanied by inflammation. The bed of the nail may, however, be inflamed, and so constitute the secondary variety. In this case there is little tendency to suppuration, and the course is chronic. The ulcerative paronychia causes destruction of the matrix.

As a rule, the toe and finger nails are equally affected in onychia and paronychia.

The condition of the nails is often of diagnostic importance, for they may show changes when all rashes have disappeared from the skin and confirm a doubtful diagnosis.

Symptoms are absent, as a rule, and the diagnosis of onychia and paronychia depends on the outward appearances. The condition is not serious, and in most cases it is temporary.

SPLEEN.

The spleen is more often affected in hereditary syphilis than in the acquired variety, but nevertheless it is involved in a large number of cases of the latter. The enlargement is the result of a general condition, and it does not seem to have any relation to the severity of the disease. In the secondary stage of acquired syphilis, the spleen is enlarged as a result of the general glandular enlargement, and percussion reveals the increase in size. Hereditary syphilis is a common cause of splenic enlargement, and, as a rule, it produces a concomitant enlargement of the liver. The tertiary syphilitic lesions

consist of gummata, circumscribed or diffuse splenitis, hypertrophy, and perisplenitis.

The only clinical symptoms of these conditions are pain and an increased area of dulness in the splenic region. Enlargement of the organ can always be recognised by percussion, and sometimes by palpation. Pain in the side is quite common in the secondary and tertiary stages of acquired syphilis, as well as in the hereditary form of the disease. The pleurodynia, occurring in syphilitic subjects, is no doubt a splenic symptom. A febrile condition is said to occur, but it is uncommon. Secondary symptoms, such as interference with the digestive process, may occur; but how much this is due to the commonly-associated liver affection, cannot be estimated. The general symptoms - loss of weight, anaemia, depression, etc. - that occur with affections of the spleen are not peculiar to these conditions. Viewed generally, the syphilitic lesions of the spleen are not productive of symptoms.

LIVER.

At one time the liver was supposed to be the chief focus of syphilis, but, as pathological anatomy became better understood, this idea was gradually abandoned, and at the present time is not entertained. It is a matter of common observation that syphilis has a peculiar predilection for certain tissues and organs, and that the brunt of the disease is borne by these structures; it is seldom the case, however, that the liver is selected for such a purpose.

The pathological changes that take place in the liver - gummata, interstitial hepatitis, cicatrices, and perihepatitis - must be understood before one can appreciate the symptoms of syphilitic disease of that organ.

The interstial hepatitis is the result of a round-cell infiltration, which ultimately becomes fibrous tissue, resulting in circumscribed or diffuse cirrhosis. On account of these changes, the organ becomes lobulated as in ordinary cirrhosis, but the lobulation is not so fine as in the case of alcoholic cirrhosis. Enlargement of the liver is the first condition discovered; this enlargement does not produce any change in the outline of the organ. Succeeding this hypertrophy a condition of atrophy

occurs, and irregularity of the outline takes place in addition. The hypertrophy and subsequent atrophy can be appreciated in some cases. Palpation and percussion are the only means by which these conditions can be demonstrated.

Gummata of the liver are common, and physical examination reveals their presence if they are superficial and near the costal margin, but in many cases their presence cannot be detected.

Perihepatitis and cicatrices occur frequently, but they are not amenable to physical examination.

It is thus seen that the liver may be enlarged, diminished, nodular, or unaltered in outline.

The symptoms of syphilis of the liver are the same as those of any similar condition produced by other diseases. The first thing the patient complains of is a feeling of uneasiness or discomfort in the hepatic region; this may gradually grow worse, and may result in actual pain. If one palpated the liver at this time, tenderness would probably be elicited. The pain is probably due to perihepatitis, and is rarely subject to nocturnal exacerbations which occur so frequently in syphilis. If the perihepatitis results in adhesions to other parts, the pain may be very severe.

Ascites is a frequent condition, especially in the interstitial hepatitis, and occurs slowly and progressively and may recur rapidly after paracentesis. It may be the first complaint of the patient. The usual signs of ascites - enlargement of the abdomen, dulness on percussion over the fluid, etc. - are present.

Jaundice is not common, and is the result of pressure of one kind or another. Gummata, enlarged glands, cicatrices, and perihepatitis may produce it. When present it entails the associated symptoms, such as clay-coloured stools, bile in the urine, etc.

Haemorrhages occur occasionally in various parts, but they are rare. They are found especially in those cases which have all the symptoms of acute yellow atrophy of the liver.

As the disease progresses, secondary symptoms are observed. The gastro-intestinal tract becomes involved, and such

symptoms as nausea or vomiting, loss of appetite, etc., gradually supervene. The portal circulation is impeded, and varicosities and oedema occur.

The cachexia, which is usually present, is a general syphilitic condition, and is not due to the local lesions.

Fever occurs in a few cases, but is not understood.

There are cases of syphilitic affections of the liver which produce no symptoms, and are only diagnosed post-mortem.

The course of syphilitic hepatic lesions is slow and progressive, the onset insidious, the duration short or prolonged, and the termination often fatal owing to the condition being usually the expression of a severe affection.

HEART.

Tertiary syphilitic affections of the heart are now recognised, but it is only lately that they have been studied. The early syphilographers may have known that the heart was not immune from the syphilitic virus, but references have not been made.

Virchow really deserves the credit of drawing attention to, and stimulating the study of, cardiac lesions in syphilis. These lesions are probably much more common than is generally supposed, and some have gone the length of stating that syphilis is the most common cause of heart troubles, with the exception of rheumatism.

The pathological changes that may affect the heart and its coverings are interstitial fibrosis and gummata. The number of reported cases of these affections is not large, and more light must be shed upon the subject before any dogmatic statements can be made.

The onset of the disease may be insidious and symptomless, or may occur suddenly and end fatally at once. Between these two extremes, all varieties are met with; but sudden death due to sclerosis of the coronaries, rupture of the heart, heart failure, and gummata seems to be more frequent than any other condition. This may be due to the fact that syphilitic heart affections are rarely diagnosed.

The symptoms of pericarditis are usually conspicuous by

their absence;but,in the case of a gumma, pain and friction and interference with the regular action of the heart may occur. Syphilitic endocarditis is never diagnosed during life.

Myocarditis is the lesion that produces symptoms which are practically the same as those occasioned by myocarditis due to any other cause.Palpitation,evergetic/and violent and with a forcible apical impulse, is a common symptom/,as is also arrhythmia.In some cases praecordial pain occurs.

The weakness of the cardiac muscle results in feebleness of the heart's action and dilatation.The dilatation and the arrhythmia constitute the most important symptoms,and should be regarded with suspicion at all times.As the disease advances, dyspnoea and a sense of oppression supervene,and,in the later stages when compensation fails, the usual train of symptoms will be observed. There is hypertrophy of the cardiac muscle,and all its physical signs are present.Oedema,cyanosis,dyspnoea,etc., soon usher in the fatal issue.

To sum up,- syphilis of the heart is insidious in onset, progressive in development,slow in evolution,and usually fatal in termination or sudden and fatal. The symptoms are not characteristic,but are those common to cardiac lesions.

Gummata of the heart occur now and then,but are by no means common; they are most common in the wall of the left ventricle,and are usually associated with some degree of myocarditis.Cardiac gummata are liable to the same pathological evolution as other gummata.When present alone,they rarely cause any symptoms,but when associated with myocarditis clinical phenomena are observed.Diagnosis of cardiac gummata is almost impossible.

The heart does not escape in the secondary stage of syphilis,but is subject to the general condition.No lesion is recognised,but such symptoms as palpitation,irregularity,and weakened sounds indicate the presence of some abnormality.

LUNGS.

Pulmonary syphilis is not common,and is an obscure disease. The early syphilographers,however,seem to have recognised the condition,as they described a malady which they termed

"venereal phthisis". If the records of the past ~~are~~ WERE carefully examined, doubtless one would find descriptions which would apply to the condition.

The existance of pulmonary syphilis was doubted, and even denied, by some until the time of Virchow. Cases of hereditary syphilis were carefully examined by him and others, and the existence of pulmonary lesions due to syphilis was proved beyond doubt. Ever since that time the lesions has been recognised, and numerous cases have been observed.

Pulmonary syphilis is an early condition in the hereditary form of the disease, but in adults who have acquired syphilis it is a late manifestation. In the latter case the lesion occurs so late, simulates pulmonary tuberculosis so closely, and is so uncommon, that its existence is rarely recognised during life.

The pathological changes consist of interstitial pneumonia, gummata and cicatrices, and of these the first is the most important. Cicatrices are of no clinical importance, and are only found post-mortem. The occurrence of cicatrices in the lungs is usually regarded as a result of pulmonary tuberculosis, but doubtless many cicatrices are due to syphilis.

Gummata are of little clinical importance, unless they are superficial and amenable to percussion. They are seldom or never diagnosed.

The most important lesion, and the one that requires our consideration here, is interstitial pneumonia; it results from a perivascular cell-infiltration terminating in sclerosis. It is seen in an uncomplicated condition almost exclusively in hereditary syphilis, and in such cases is known as the "white pneumonia of the newborn," the first description of this condition is commonly attributed to Virchow.

The lung looks as if it had been inflated, but there is no air in the vesicles; the latter are filled with exudation, and the lung sinks in water.

The symptoms of hereditary pulmonary lesions are not characteristic, and are usually absent, as the child is either stillborn or soon dies from broncho-pneumonia.

In adults the symptoms are obscure and irregular. The lesion may escape physical examination, and, as functional derangements do not always occur, it may pass unnoticed.

Fournier (Marshall.- Syphilology) distinguishes three stages of the disease - (1) The disease is latent, causes no symptoms, and is only diagnosed post-mortem. (2) The general condition is unaltered, but physical signs are present. (3) The symptoms and signs are the same as those of phthisis pulmonalis.

The first symptoms are usually more or less dyspnoea, and a more or less obstinate cough with little or no expectoration. As the diseae progresses, the signs and symptoms of phthisis supervene, but they are not so acute. Pain, cough, expectoration, dyspnoea, and cyanosis develop, and haemoptysis may occur. Fever and night-sweats are absent. The lesion is usually situated in the lower lobe of the lung, and the physical signs are those of phthisis of that organ.

The onset is usually insidious, the evolution slow, and the course progressive. There is no characteristic lesion, and diagnosis is arrived at by exclusing other diseases and obtaining a history of syphilis.

Lancereaux (Treatise on Syphilis, Vol. i.) says that a certain degree of dulness with tubular breathing, not preceded by febrile reaction, persisting, limited to one of the lower or a middle lobe, in a cachectic individual, in whom the apices are intact and the liver diseased, is suggestive of syphilis.

LARYNX.

The syphilitic affections of the larynx which occur in the secondary stage have the mucous membrane for their exclusive seat, and extend superficially rather than deeply; the functional derangements are slight and transitory. The laryngeal mucous membrane is attacked in nearly all cases of syphilis, and the lesions of the secondary stage comprise erythema, mucous patches, infiltration, and condylomata.

Erythema is the most common condition, and it extends to the vocal cords and epiglottis. The redness is punctiform and circumscribed, and may be accompanied by erosions. It is a

persistent condition, and it usually lasts for some weeks.

Infiltration may be diffuse or circumscribed, and is usually unilateral or involves one side more than another. The diffuse variety may affect the cartilage of the larynx and impair the movements of the vocal cords. The mucous membrane is red and swollen and looks elevated and thickened; the swelling may be so great as to interfere with respiration. If the condition persists for some time, ulceration is apt to occur. The circumscribed infiltration is similar to the diffuse, but is less extensive and less liable to assume a serious phase.

Mucous patches of the larynx nearly always coexist with mucous patches in the mouth. They are gray in colour, elevated, and corrugated, and usually have an inflammatory areola. They may be situated on one or both vocal cords, or anywhere on the laryngeal mucous membrane. Erosion is not uncommon afterwards.

Condylomata are exceedingly rare, and, when they do occur, are tenacious and liable to return again.

Oedema is an important complication of the secondary period, and the possibility of the occurrence of the same must always be borne in mind. It is found most frequently in smokers, alcoholics, and those who use the voice excessively.

Secondary laryngeal lesions are usually seen in their worst form in smokers, alcoholics, singers, etc., who have acquired syphilis. They tend to resolve and leave no trace of their presence.

Dryness of the throat, with slight discomfort in swallowing, is often the first symptom complained of. Erythema causes little alteration in the voice, as a rule, but sometimes it causes it to be harsh and raucous. When mucous patches occur the voice is markedly altered, and may even be absent. Oedema is evidenced by difficulty in swallowing and attacks of suffocation. Pain is not commonly experienced.

Tertiary Lesions.

In tertiary syphilis the laryngeal lesions are deep and circumscribed, and their results are severe and permanent. They consist of gummata, ulceration, stenosis, and perichondritis.

Gummata are usually well defined at first, and form projections on the surface and give rise to distortion of the normal configuration. They occur singly, as a rule, and are therefore unilateral in most cases. When a gumma softens and breaks down, an ulcer, which rapidly extends in breadth and depth, occurs. The ulceration may involve the cartilage separately, but perichrondritis, with secondary ulceration, may occur and rapidly destroy the framework of the larynx.

Stenosis, of a variable degree, is the result of ulceration. The symptoms are objective and functional.

The objective symptoms are revealed by laryngoscopic examination, which shows ulceration - more or less deep and with or without necrosis of the cartilage - and erythema or a gumma, according to the lesion present. Secondary inflammation may occur, however, and render this examination impossible.

Functional symptoms are variable. The change in the voice is very manifest and persistent, and the degree of change varies from hoarseness to complete aphonia. The characteristic and classical change is the "vox rauca", which is chronic in character and may last for years.

The patient usually experiences a sensation of uneasiness or pricking, and sometimes actual pain, in the region of the larynx. Respiratory troubles are secondary, and all varieties of dyspnoea, from simple wheezing to continuous stridor, may occur. There may be no expectoration at first, but later a mucous or purulent or mucopurulent sputum, often sfreaked with blood and containing debris of mucous membrane, cartilage, etc., is present. Swallowing is not interfered with, unless the epiglottis or posterior part of the pharynx is involved. Pain is by no means a constant feature, and is not infrequently absent altogether. Oedema may supervene, or a piece of cartilage may block the air-passages and cause sudden death.

The course is slow, continuous, and progressive, but may suddenly become acute. The termination varies with the character and extent of the lesion, and may be recovery or fatality.

KIDNEYS.

Early writers on syphilis do not mention syphilitic renal

affections, and it is only in modern times that such lesions have been studied. Tertiary syphilitic diseases of the kidneys were the first to receive investigation and description at the hands of Virchow; the knowledge of secondary syphilitic renal troubles is of more recent origin, and is due to Lancereaux, Fournier, Neisser, and others.

Syphilitic nephritis has been divided into two classes - early and late. The former resembles the nephritis of acute infectious fevers, and the latter appears as sclerosis, atrophy, and gummata. This division is useful, but, like the division of syphilis into periods, is not accurate as early syphilitic affections may pass into the tertiary stage and assume the appearance of lesions produced in that stage.

There is indisputable evidence that secondary syphilis affects the kidney; and the lesions are simple congestion and parenchymatous or interstitial nephritis. The only evidence of the presence of simple congestion is albuminuria, and this fact has led some to deny the existence of this condition. Those who so affirm attribute the albuminuria to mercury, but albuminuria has been found in syphilitic patients, in the secondary stage, who have taken no mercury.

The parenchymatous or interstitial nephritis causes the kidneys to assume the type of the large white kidney. There may be prodromal symptoms, such as headache, but the first indication is usually slight oedema of the ankles, which soon spreads rapidly to other parts. The urine is scanty, contains a large amount of albumin, and has tube-casts - blood, epithelial, and granular. Gastro-intestinal derangements occur later.

Tertiary syphilis is a common cause of nephritis, and may be responsible for more cases than is generally supposed. Interstitial nephritis is the common lesion, and is evidenced by the presence of fibrous tissue. Some authorities, however, deny that syphilis is a common cause of nephritis, and attribute the lesion in such cases to alcohol and over-treatment. Doubtless some attention must be given to this view, but, considering that nephritis is so constant a feature in post-mortem examinations

on syphilitic patients whether there is a history of alcoholism or not, one is almost inclined to state that syphilis is the most frequent cause of interstitial nephritis. The power of alcohol and syphilis in combination is so great that great caution must be exercised in attributing any lesion to syphilis when alcoholism is a coexisting factor.

The condition produced is slow, continuous, prolonged, and often fatal.

The symptoms are the usual ones of Nephritis, and need only be mentioned. The arterial tension is increased, and the left ventricle is hypertrophied. The urine is pale in colour, abundant, and of low specific gravity, containing a small amount of albumin. Oedema is not extensive. Later on, dyspnoea, retinitis, vomiting, etc., occur.

Gummata and cicatrices are uncommon renal lesions; they are of no clinical importance.

ALIMENTARY TRACT.

TONGUE.

The tongue may be affected in all stages of syphilis. Chancre of the tongue is not unknown, and usually occurs in sexual perverts. It presents the characteristics of other chancres and need not be dilated upon.

Secondary syphilis commonly affects the tongue, and the lesions consist of erosions, fissures, mucous patches, and condylomata. Mucous patches are predisposed to, and aggravated by, alcohol, excessive smoking, and decayed teeth, and form condylomata when hypertrophied and warty-looking. The only symptom produced is pain.

Tertiary lesions are the most important, most serious, and most troublesome of syphilitic affections of the tongue.

Gummata appear at an advanced stage of the disease, and are by no means common. They develop at all points of the organ, but occur most frequentlyat the base, and are superficial or deep. A single gumma is not common; they are usually multiple, rounded, or irregular, and of varying size. They increase slowly, soften, break down, and leave more or less deep ulcers with perpendicular

TYPICAL SYPHILITIC TONGUE.

p. 105.

edges. At first they do not attract much attention, more especially if they are deep. The tongue is usually increased in size, and salivation may occur. Ulceration is the cause of the symptoms, which are pain on swallowing and dysphagia.

The w r i t e r came across a gummatous ulceration of the tongue a few days ago, in which the only symptom complained of was pain on mastication; there were two ulcers involving the muscle of the tongue, one situated near the base and the other midway between the base and tip near the middle line.

Sclerosing glossitis is a syphilitic lesion causing an indurated and lobulated tongue. This condition chiefly affects the dorsum. The lobulation is due to the contraction of the fibrous tissue and is characteristic of syphilis. The lobules are small and numerous, and present an appearance not found in any other disease (see PHOTOGRAPH).

The mucous membrane is red in some places and white in others, and the organ itself is enlarged at first. This enlargement may be so great as to cause the tongue to project from the mouth, and is a common condition in syphilis. Later on atrophy is usually observed. The condition is chronic and liable to recur on the slightest provocation. In this case also, pain is the usual symptom.

Leucoplakia is a condition that is undoubtedly associated with syphilis, but there is no unanimity as to whether it is a tertiary or a parasyphilitic lesion. Many regard it as syphilitic in nature. It is a chronic inflammation of the mucous membrane, characterized by the appearance of whitish patches from thickening of the mucosa. These patches may be thick or thin, and vary in size and shape. The dorsum is most commonly affected. More or less desquamation occurs, and later on furrows develop and ulceration is liable to occur.

OESOPHAGUS.

The oesophagus is rarely affected in syphilis, but summata and ulcers, with their accompaniments, are recognized; Virchow, Wilks, West, and others have reported cases.

STOMACH.

The stomach is not a common seat of syphilitic lesions.

Lancereaux and Virchow (Lancereaux.- Treatise on Syphilis) have observed a thickening of the stomach wall ,and other have observed an analogy between syphilis and gastric ulcers.

Morgan (Keyes.- Syphilis) distinguishes three types of syphilis of the stomach:

(1) A chronic gastritis which causes dyspeptic symptoms (nausea,vomiting,inability to retain food,wasting,etc.).

(2) Gastric ulcer causing pain,vomiting,and even haematemesis.

(3) A carcinomatous type producing the signs and symptoms of carcinoma (pain,loss of flesh, vomiting,tumour,and cachexia).

The w r i t e r has come across a case of gastric trouble simulating carcinoma and due to syphilis.

CASE.- C. B...,aged 68, admitted to Leeds Union Infirmary, on July 11, 1908, complaining of a feeling of sickness after food,pain in the epigastrium,cough,expectoration,and loss of flesh.These symptoms have troubled him for some time,but have been worse during the last few weeks.

He has been employed as a currier,and is a widower.His wife bore him four children,but three of them died in infancy.

His previous health has been good and,with the exception of syphilis which he had when he was about 19, he has not had any illnesses. He has never taken alcohol to excess or continuously.

On admission, he was sallow and had headache and dizziness. The respiratorysystem was not markedly affected; a few moist râles were all that could be detected.

Percussion of the heart revealed hypertrophy of the left ventricle,and on auscultation the heart's sounds were found to be regular and free from adventitious murmurs,but were not distinct and clear. The arteries were thickened.

Palpation of the epigastrium elicited tenderness and revealed a small,hard tumour,about the size of a walnut,three inches vertically above the umbilicus.This tumour was tender, painful,and circumscribed.

He suffered from inguinal hernia and had haemorrhoids.

He was put on an antisyphilitic treatment,and when he was discharged - on March 3, 1908 - no tumour could be felt. During

his sojourn in our institution he vomited only occasionally.

On March 8, 1909, he was admitted again complaining of shortness of breath, swelling of the legs and feet, headache, and lassitude. He was undoubtedly suffering from nephritis of a syphilitic nature. At the present time (March 26, 1909) he is improving gradually.

This is a case in which syphilis alone can be held responsible for the gastric and renal lesions. The tumour was suggestive of cancer, but the treatment cleared up the diagnosis. As regards the nephritis, alcohol must play a very subsidiary part, if indeed it can be given an influence, in its production. Another point of interest is that there is no sign of arterio-sclerosis.

INTESTINES.

Intestinal disturbances are common in syphilis, but whether they are of syphilitic origin or not is unknown. The intestinal tract is regarded as a probable seat of syphilitic lesions, but such lesions are not common. Doubtless syphilis of the intestines is more common than is supposed, and syphilitic lesions are diagnosed as other conditions. Reference to the past does not throw much light on the question, as the early syphilographers make no mention of intestinal syphilis.

Multiple, rounded ulcers - more or less deep and circumscribed by fibrous tissue and presenting more than an analogy with syphilis - have been described. Gummata and cicatrices have also been observed.

RECTUM.

Syphilis of the rectum assumes an important place in the mind of the general practitioner, more on account of Fournier's insistence than on the frequency and importance of the lesions.

Gummata and ulceration occur in the rectum; the former gives rise to no particular symptoms, but ulceration causes pain and attracts the patient's attention. The pain is increased after defaecation and is accompanied by spasm, discharge from the rectum, and irregularity in the action of the bowels. The ulcer is usually found to be situated within two inches of the anus, and may involve the whole circumference of the bowel.

Contraction and subsequent stricture may result.

Ano-rectal syphiloma is another condition found in syphilis; it is more common in women than in men, and is found on rectal examination to consist of a hard, thickened ring composed of the mucous membrane and subjacent connective tissue in a state of transformation. Ulceration frequently occurs and gives rise to symptoms which would otherwise not be present. These symptoms are pain, diarrhoea, rectal discharge, and cachexia. Lancereaux (Treatise on Syphilis) says it is a local condition found in venereal diseases, and is not characteristic of syphilis.

VASCULAR SYSTEM.

ARTERIES.

The arteries are much more often affected than the veins and lymphatics. As on many other important effects of syphilis, the early syphilographers are silent on the subject of syphilitic lesions of the arteries, and it was only during the last century that the condition was recognized and proved. Even at the present time, there are many points that require elucidation.

The changes in the blood-vessels constitute the fundamental element in the pathology of syphilis in all its stages, and, when one considers that nearly all acute and chronic infections are believed to cause changes in the arteries, it is not surprising to find that syphilis does the same.

Arteritis occurs in the primary, secondary, and tertiary stages of syphilis, but in the primary and secondary periods it is part and parcel of the lesions, and is of no importance in itself; the gummata also show arteritis of secondary importance, but in tertiary syphilis an arteritis of importance on its own account occurs as well. The condition, as part of a lesion, is the most constant and characteristic feature of the disease; but the arteritis, which requires consideration and is a lesion itself, is common, but by no means constant.

It usually occurs between the third and twelfth years of the disease, except in cases of the aorta, when it occurs later. Such limitations, however, are not absolute as cases of arteritis have been recorded as occurring in the first year after the

appearance of the chancre. The arguments against the division of syphilis into periods are supported by the arterial lesions.

The vessels of the brain are most commonly affected, and it is in them that the condition can be best seen. These vessels appear on examination to be irregularly thickened and of a white colour; they are often thrombosed, and sometimes obliterated at some places and dilated at others. Aneurysm is not a common sequel to these changes. The vessels of the brain, it must be remembered, are insignificant and any thickening is easily seen. The aorta is most frequently affected after the cerebral arteries, and the lesions produced may cause aortic stenosis or regurgitation.

The symptoms produced are numerous and must be studied under different headings.

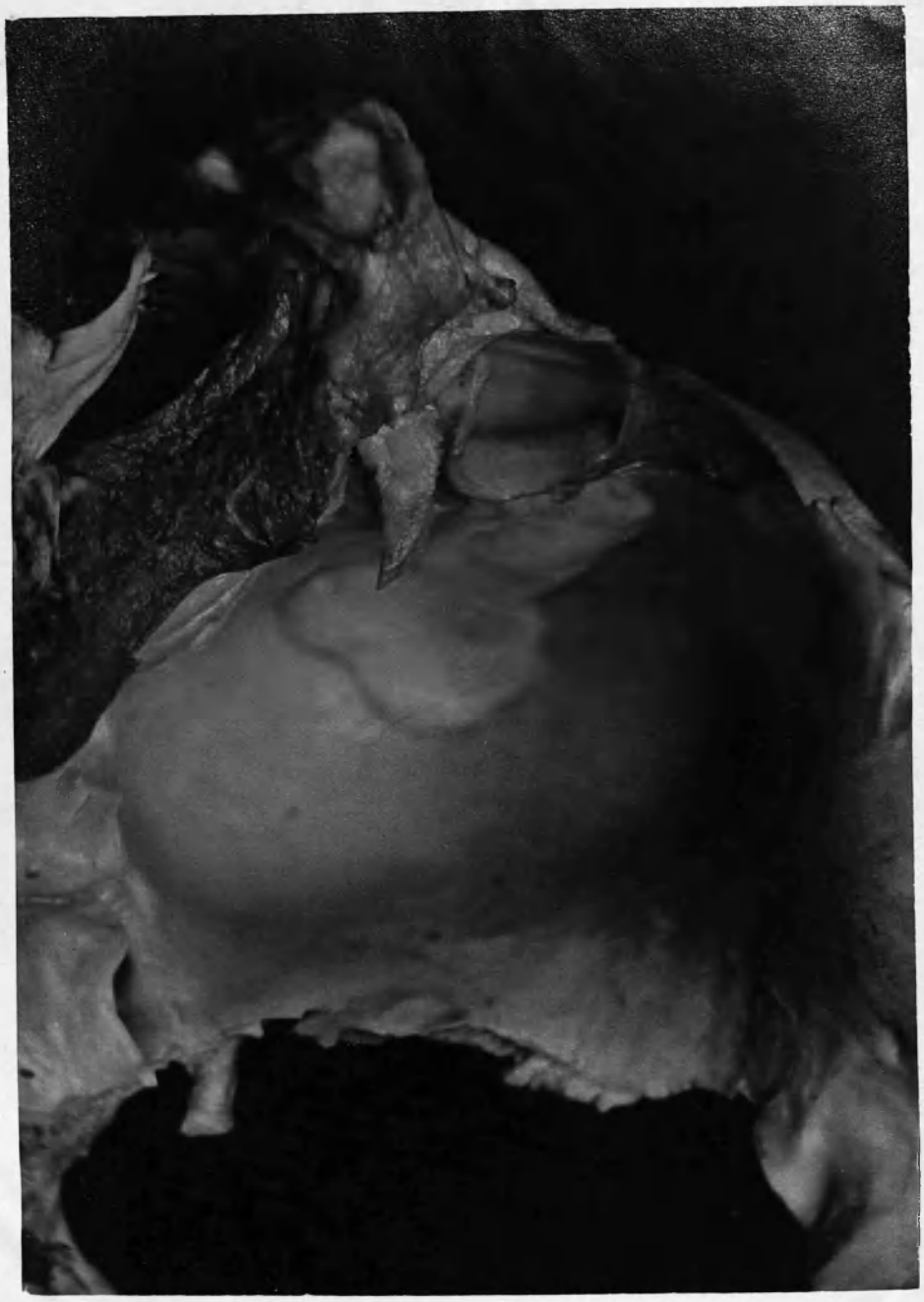
When the vessels affected is a terminal artery, the results are most serious. If the vessel is not completely blocked, there result ischaemia of the parts supplied by the vessel and diminished function, but, if the vessel is completely blocked, anaemia and death of the parts occur. In the case of the cerebral arteries, softening of the brain results and is manifested by various forms of paralysis, according to the part affected, dementia, etc., if the artery is thrombosed; in the case of partial obliteration of the lumen of the vessel, dizziness and temporary paresis occur.

If the affected artery is not a terminal one and if there is collateral circulation, the latter is impeded and function is diminished.

When the coronary arteries are affected, angina pectoris or sudden death may be the outcome thereof. The former is the more common result and produces the well-known symptoms of the condition - pain, a sensation of impending dissolution, etc.

Syphilis affecting the vessels of the lower limbs may lead to gangrene, and cases of so-called senile gangrene, occurring in persons of middle-age, are usually due to syphilis. The symptoms are those of gangrene, but there may be such premonitory ones as pain, weakness, intermittent claudication, etc.

It has been advanced that syphilitic arteritis may be the cause of tertiary phagedena.



AORTIC ANEURYSM.

ATHEROMA.

p. 110.

When the aorta is affected, the condition is known as atheroma. This is not so extensive as the arteritis of the smaller vessels, but is more localized and usually occurs in patches. The latter are elevated, whitish, soft, and pliable, and do not tend to degenerate. The only symptom that this lesion causes is pain behind the sternum, and, as a rule, it is conspicuous by its absence. In some cases, however, the aortic valve is implicated, and may become stenosed or incompetent, symptoms of aortic valvular disease resulting. It is unnecessary to detail the symptoms, as they are not peculiar to syphilitic conditions.

Aneurysm.

The question of the relation of aneurysm to syphilis is now settled, and syphilis is accordingly accepted as a common cause thereof.

The syphilitic origin of aneurysm has not, however, always been recognised; it was pointed out by some of the earlier observers, but it was not fully interpreted until the latter half of the nineteenth cnetury.

The signs and s mptoms are well known; they are, moreover, not peculiar to syphilis.

Arterio-sclerosis.

This is the last of the arterial lesions to be considered.

Huchard (Marshall.- Syphilology) regards atheroma and arterio-sclerosis as due to the same morbid process - atheroma the lesion, arterio-sclerosis the disease. He admits the relation between syphilis and arterio-sclerosis, but states that syphilis is not one of the usual causes of arterio-sclerosis.

Some state that generalized arterio-sclerosis is a para-syphilitic lesion, and the reason adduced is that it may depend on a syphilitic lesion of the suprarenal capsules.

The w r i t e r has examined the records of cases of generalized arterio-sclerosis in the Leeds Union Infirmary, and also the suprarenals in cases of patients who have died and had arterio-sclerosis. The conclusions arrived at are:

(i.) General arterio-sclerosis is not purely a syphilitic affection.

(ii) It may result from the combined action of alcohol and syphilis.

(iii) Alcohol and laborious work seem to have some connection with the lesion.

(iv) Lesions of the suprarenals are not very common, and do not occur so frequently in arterio-sclerosis as to warrant anyone saying that there is any connection between the two conditions. Lesions of these bodies are found more frequently in syphilitic subjects with no arterio-sclerosis than in subjects with arterio-sclerosis with or without evidences of syphilis.

The writer did not find a case of arterio-sclerosis in a syphilitic patient who had not been subject to hard work OR ALCOHOL, and found numerous cases in which Bacchus and Vulcan were the only factors.

There may be something in the fact that the the cause of arterio-sclerosis may be hereditary; the supporters of this view are inclined to the belief that the hereditary cause is syphilis. The fact that condition is found most commonly in subjects who deny syphilis, or who show no evidences of it, and in patients who have laboured strenuously during life and taken alcohol to excess, seems to indicate that syphilis is not so important a factor in its causation as many authorities make it out to be. One is almost inclined to be broad-minded enough to say that in a severe, untreated, long-continued case of syphilis the possibility of arterio-sclerosis occurring is not to be disregarded.

PHLEBITIS.

The veins may be affected to some degree in all stages of syphilis, but the lesions are not so common and so marked as those of the arteries. Rieder (Marshall.- Syphilology.) states that an endophlebitis occurs in the chancre and precedes the arteritis. In the secondary stage, a phlebitis of a benign character sometimes occurs, and is not associated with marked symptoms.

A nodular phlebitis occurs in syphilis and resembles erythema nodosum.

The w r i t e r has come across erythema nodosum in cases of syphilis, and one of the charts illustrating the

temperature was froma syphilitic patient suffering from such a condition.

The following is the most recent CASE the writer has seen:

E. C...,aged 30,was admitted to the Leeds Union Informary,on March 20,1909,complaining of a sore-throat of three weeks' duration,and of a rash on the body and arms seven days in existence.Two days before admission she had pain in the right leg,and the same has continued ever since.

She was a married woman and had borne three children. The first child lived four months,the second was still-born,and the third was living at the time when she was admitted.Her character was not above reproach,but she denied having had syphilis.The only illness she had had was pleurisy.She was a heavy drinker of rum.

On admission,her throat was congested and a reddish,confluent,elevated,papular rash was seen on the arms and trunk.At places discrete papules were seen,and the arms were more involved than the trunk.On both legs were a few elevated,purple spots about the size of a halfpenny;these spots were tender,hard and circumscribed.The lungs were normal,and the only circulatory lesion was a ventricular systolic murmur. The labia minora were hypertrophied and projected about an inch and a half beyond the labia majora.The temperature was normal,and no other lesions were found.

Antisyphilitic treatment was ordered and the lesions disappeared.

A gummatous phlebitis has been described, but it is not common.

LYMPHATICS.

Lymphangitis occurs in secondary syphilis. The lymphatics are felt as hard cords,but there is neither pain nor inflammatory reaction.

A plastic lymphangitis occurs and causes a condition of elephantiasis.

The case described above had a hypertrophic condition of the labia,which was in all probability due to plastic lymphangitis. Two cases of syphilitic elephantiasis of the leg have been described under Pathology.

Adenitis occurs in the primary and secondary stages of

syphilis, and consists of a painless enlargement of the lymphatic glands. The latter are discrete, movable, and indurated; there is no periadenitis (see symptoms of primary and secondary syphilis).

NERVOUS SYSTEM.

Our knowledge of syphilis of the nervous system is of comparatively recent date, although the earlier syphilographers recognised the condition. As early as the beginning of the seventeenth century, cases of cerebral syphilis were recorded; but it is due to the researches and observations of Ricord, Virchow, Lancereaux, Wilks, Broadbent, Jackson, Gowers, Fournier, Mott, Ferrier, and others that our knowledge of such lesions has attained its present dimensions. There is no doubt that a great deal is known about the subject, but much remains to be done.

Syphilis of the central nervous system is exceedingly common, very severe, and far-reaching in its effects; the lesions produced are the most important of all the manifestations of syphilis on account of their frequency, insidious development, and disastrous results. Syphilis of the skin is the most frequent, syphilis of the mucous membranes the most contagious, and syphilis of the nervous system the most malignant manifestion of the disease.

There is no doubt that syphilis is the chief factor in organic disease of the nervous system and one of the principal causes of insanity. The virus may produce its effects by causing inflammation of the membranes and bloodvessels, causing occlusion of the vessels and subsequent degeneration of the nerve elements; by causing gummata, and by lowering the vitality of the nerve cells. The progress of the disease cannot be estimated until definite signs are produced, as the usual methods of examination by the senses are inapplicable. The fact that the cerebral arteries are terminal, and that nerve cells do not tend to reproduce, render slight changes of great functional importance.

Syphilis of the nervous system is really a tertiary manifestation, but the brain may be affected in the secondary stage of the disease, and such symptoms as headache and delirium

occur.Headache and sleeplessness in the secondary stage are frequently warnings of future brain trouble.The tertiary lesions are by far the most important ones and will now be described:

BRAIN.

The brain is more commonly the seat of tertiary syphilis than the cord,and the lesions produced do not differ essentially from tertiary affections of other parts.

As regards cerebral syphilis,it should be noted that it is most common in white people,males are affected more frequently than females,the older the patient when he acquires syphilis the more likelihood is there of him developing it,and that alcohol is the born enemy of syphilis.

Syphilis of the nervous system occurs usually between the third and the twelfth years of the disease,and reaches its maximum in the third year.These statements are relative,not absolute,because nervous syphilis has been observed in the first year.

The chief cause of it is insufficient treatment,and it has been observed to occur most frequently in syphilitics who have had very mild secondaries,and have on this account been badly treated.

The lesions may originate in the cranium,the membranes,or the blood-vessels;they consist of meningitis,arteritis,and gummata and their sequels.

The dura mater is frequently involved in a diffuse or circumscribed lesion,which may be external or internal. When external,it is usually associated with an osseous lesion,and when internal with changes in the pia mater and brain substance. The convex surface of the hemispheres is the favourite situation of such lesions.The meningitis which affects the pia and arachnoid membranes is usually basal,and in the interpeduncular space; the membranes are thickened and adherent,and such a condition in the situation mentioned is suggestive of syphilis.The onset is gradual,evolution is slow,and such symptoms as headache, vertigo,coma,convulsions,paresis,dementia,mania,and stupour may result.The pachymeningitis described may cause Jacksonian epilepsy.

Gummata occur anywhere,and their pathology and effects are similar to those produced by gummata elsewhere.They are usually situated on the surface of the hemispheres or at the base;around the gumma meningitis develops,and usually involves the superficial layers of the cortex.On the surface,the symptoms are those of intracranial tumour;while at the base one or more of the cranial nerves are frequently affected in addition.The localizing symptoms depend on the exact situation of the gumma,and may be of infinite variety.Permanent paralysis is a common result of gummata.

Arteritis is the chief factor in the pathology of cerebral syphilis,and is found most often in the vessels of the circle of Willis; the calibre of the vessel is diminished and thrombosis,aneurysm,and haemorrhage may result.The effects produced vary with the degree of occlusion of the vessel,and are ischaemia or anaemia and softening of the parts supplied by the vessel. The symptoms are multifarious and depend on the part involved.Hemiplegia,aphasia,various kinds of paralysis,epileptiform attacks, and even insanity,are possible effects.

Symptoms.

Cerebral syphilis is characterised by the great multiplicity of its phenomena,which may vary with the site and intensity of the lesion.It may commence with headache,vertigo, epileptiform attacks,hemiplegia,or mental disorders.In many cases there are prodromal symptoms which,if judged properly,might warn the patient.The following are some of them:

Headache.- This headache presents one or two characteristic features.It is characterized by nocturnal exacerbations,resistance to all ordinary remedies for headache,amelioration under potassium iodide,and persistence.The nocturnal exacerbations is not a feature in every case,and its absence does not exclude a syphilitic origin;but the persistence is a constant feature and is never absent.The character of the headache is not the same in every case;in some cases the patient may feel as if he had a weight on his head,in others the head feels as if it were in a vice.It may be localized or diffuse,and sometimes causes

sleeplessness.

Mental Symptoms.- The patient becomes gloomy, morose, and irascible; he is unable to concentrate his attention on anything. His memory begins to fail. These symptoms differ from the headache in being irregular and intermittent. Vertigo, temporary aphasia, and momentary paralysis sometimes occur before an attack of hemiplegia or insanity. Convulsions are not frequent.

General Symptoms.- The health of the patient is affected constantly. He gradually loses weight, and becomes weak and anaemic.

These prodromal symptoms are very important and often lost sight of. If they were attended to, no doubt many cases of impending syphilitic nervous diseases would be alleviated.

The lesion, as a rule, develops suddenly after the prodromal symptoms, but usually requires some hours, or even days, to attain its maximum. It is not uncommon for a syphilitic subject to go to bed at night without any paralysis, and to find that he has a hemiplegia in the morning.

The termination varies and may be complete cure, incomplete cure, permanent damage to some part or parts, or death.

The detailed symptoms are so numerous, diverse, and various that one feels at a loss where to begin; but, in the midst of the apparent chaos, there is cosmos. There are certain groups of symptoms which can be taken, and this as hereunder:

Ocular lesions, due to syphilitic lesions of the brain, are common, and may or may not be associated with others. Paralysis of the third nerve is so frequent that it is almost characteristic, and, when one finds such a condition, syphilis should be suspected. It seems that the syphilitic virus has a predilection for this nerve. The paralysis may be complete or incomplete, and is usually unilateral. Diplopia and ptosis are the chief symptoms, and there is an absence of pain if there is no eye-strain; the diplopia is crossed and prevents the patient from reading. As a result of the difficulty in locating objects, vertigo may occur. The ptosis is usually more or less complete, and the eye is drawn outwards by the superior oblique and external rectus muscles, which are not affected and more or less fixed.

Paralysis of the fourth and sixth nerves, which supply the superior oblique and external rectus muscles respectively, occurs now and again. Diplopia is the usual symptom.

Optic neuritis occurs very often as a primary or secondary lesion, and is usually accompanied by more or less loss of vision.

Various forms of paralyses are due to cerebral syphilis, and of these hemiplegia is the most common. It is usually preceded by prodromal symptoms, and, when it occurs, usually takes some time to develop. There is not any loss of consciousness, and a gradually increasing weakness may be the only symptom. It is incomplete, affecting some muscles more than others, of varying intensity, usually unilateral, and progressive. Bilateral hemiplegia does occur as the result of a double lesion. The muscles, as a rule, do not atrophy. Monoplegia may also occur.

Aphasia is also very common and is usually accompanied by some other lesion. Rarely does it occur alone. It is often incomplete and intermittent, and may occur with hemiplegia.

Deafness is not uncommon, and is rarely a solitary lesion. The typical deafness is sudden in onset and complete, but it may be incomplete and gradual in its occurrence. It is not associated with pain and its progress is rapid.

The facial nerve is sometimes affected, causing facial paralysis which is usually incomplete. The symptoms are those of facial paralysis due to any cause, and are not characteristic of syphilis.

The hypoglossal and vagus nerves are sometimes paralyzed, but are not often affected.

Bulbar paralysis may be primary or secondary. Death may occur rapidly or after cardiac and respiratory troubles. As a terminal symptom it is not uncommon and is very distressing. There occur difficulty in mastication and swallowing, running of saliva from the mouth, paralysis of the soft palate, immobility of the tongue, etc.

Syphilitic epilepsy is a common condition, if one includes every convulsive seizure under that heading. It may be the

first sign of cerebral syphilis. Epilepsy, appearing for the first time in a middle-aged individual without any appreciable cause, is practically always due to syphilis. It may or may not be associated with other symptoms, but usually is. There is generally prodromal headache of the characteristic syphilitic type. The attacks are not usually accompanied by loss of consciousness, and one side, as a rule, only is affected. Each attack lasts from three to twenty minutes, and is not preceded by the usual initial cry. The condition is usually followed by some other lesion, e.g., hemiplegia.

In addition to the above symptoms there is a class of phenomena which may be called mental. There is progressive loss of memory, want of connection in ideas, speech, and action, or an excitement which may amount to delirium.

Syphilis is now regarded as one of the chief causes of insanity, and can be responsible for the occurrence of any form of it; both the acquired and the hereditary forms of the disease are powerful agents. Dementia, with or without paralysis, occurs; but, while the latter is rare, the former is very common. Numerous cases of paralytic dementia due to syphilis can be found anywhere. Most neglected cases of syphilitic hemiplegia lead to dementia. An almost constant post-mortem condition in such cases is an increase of the cerebro-spinal fluid, accompanied by atrophy of the brain substance.

Mania and delusional insanity occur now and again.

The connection between diabetes and syphilis has been studied by various authorities, and it has been proved that syphilis is a frequent cause of glycosuria. The diabetes occurs in three forms: (1) Diabetes accompanied by pancreatic lesions; (2) diabetes accompanied by cerebral lesions; and (3) diabetes without pancreatic or cerebral lesions.

Bosanquet (Lancet, April 8, 1905) found evidence of syphilis 10 times in 80 post-mortem examinations on diabetic patients.

Parasyphilitic Affections.

It would be scarcely wise to neglect the parasyphilitic affections, although such do not concern the present work. The

chief of these affections are locomotor ataxia and general paralysis, which may occur together or follow one another. These two diseases are regarded as merely different aspects of the same affection; in one instance the spinal cord is affected, and in the other the brain. There is no doubt that the majority of those who suffer from these two accidents have had syphilis. The general opinion in this country is that syphilis is the most common cause, but in France the idea is entertained by some that syphilis is the one and only cause.

The symptoms of each are classical, and need not be discussed.

Probably under this heading come other nervous affections. Spielmeyer (Medical Annual, 1908) has produced similar lesions to those found in tabes by inoculating animals with the trypanosome of sleeping sickness. This will probably result in settling the question as to the origin of tabes dorsalis.

SPINAL CORD.

Syphilis of the spinal cord is not so common as cerebral syphilis, but it is the most frequent spinal lesion. Syphilis, in its ordinary course and excluding parasyphilitic lesions, causes more than half of the diseases of the spinal cord. The lesions produced do not differ from those of the brain, except in situation, frequency, and effects; they consist of meningitis, myelitis, meningomyelitis, and gummata. An arteritis occurs as well, but it is not important. These lesions are irregular in distribution, and are by no means confined to one part; the meninges may be involved as well as the cord, and lesions of the brain or its membranes, or both, frequently coexist with spinal lesions.

The meningitis may be circumscribed or diffuse, may start in the membranes or be secondary to other lesions, usually affects all the membranes, and may be limited to the cord or be associated with cerebral meningitis.

Gummata are relatively infrequent, and do not differ from other gummata, except in the symptoms produced.

The symptoms of spinal syphilis vary considerably, and are even more irregular than those of cerebral syphilis. The chief

symptoms are:

(i) Paralysis. The most common form of paralysis is paraplegia, but spinal hemiplegia, monoplegia, and quadriplegia sometimes occur.

(ii) Pain. This may be of any variety, and it may result from the involvement of any nerve. When due to meningeal lesions, it usually shows nocturnal exacerbations. Girdle-pain is not uncommon.

(iii) Disturbance of reflexes. The reflexes are usually either diminished or exaggerated, but may remain intact.

(iv) Loss of sexual power.

(v) Anaesthesia, numbness, etc.

(vi) Trophic disturbances.

(vii) Affections of the bladder and rectum. These usually occur later, and may be retention or incontinence.

The occurrence of spinal syphilis is not regular; it may occur early or late. It has a tendency, however, to appear during the first three years of the disease.

The termination is complete or incomplete cure, death, or permanent damage.

PERIPHERAL NEURITIS.

Syphilis causes a peripheral neuritis, which may be primary or secondary. The primary form is rare, and the chief causes of the secondary variety are lesions of the brain, cord, meninges, and bones.

It is characterized by pain, but disturbances of motion and sensation are not rare.

In addition to the lesions described under the nervous system, there are points regarding the cerebro-spinal fluid and eye that require brief consideration:

CEREBRO-SPINAL FLUID.

A lymphocytosis of the cerebro-spinal fluid occurs very often in syphilis, even in those who show no signs of nervous syphilis. It has been found that this condition is due to the disease itself, and not to meningitis. The value of this phenomenon is that it enables one to differentiate syphilis from neurasthenia, alcoholism, etc., and that it may help in establishment of a relationship between syphilis and tabes dorsalis.

ANEURISM RUPTURING INTO TRACHEA.

DILATATION OF AORTA

ATHEROMA.

P. 121.

EYE.

The researches of Babinski and Charpentier (Marshall.-Syphilology) have shown that the loss of Pupillary reflex to light constitutes by itself an almost pathognomonic sign of nervous syphilis.Lymphocytosis of the cerebro-spinal fluid accompanies this loss of reflex,and the two together are postive signs of syphilis.

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CASE OF ANEURYSM DUE TO SYPHILIS.

C. T...,aged 48,was admitted to the Leeds Union Infirmary, on July 16,1908,complaining of shortness of breath and a choking sensation of three months' duration.He had been confined to bed for three weeks prior to admission.He felt as if there was always something in the throat,and he affirmed that he had been steadily losing flesh for some time.

He was a furnaceman,and had been twice married;his first wife bore him one child,and his second one had two children. This woman was a heavy drinker,and had been in the asylum for four years.He himself took drink to excess (beer),but the only illness that he can remember having is syphilis at the age of eighteen.

On admission,the first point to attract attention was inspiratory stridor.He said that he was short of breath whenever he exerted himself,and that he had had a cough for some weeks.The cough was short,but not metallic in character. No pulmonary lesion could be discovered.Increased dulness was elicited on percussion over the manubrium sterni,especially to the left.No adventitious sounds were heard on auscultating the heart.Tracheal tugging was present;the right radial pulse was stronger than the left.The diagnosis was aortic aneurysm.

Two days after admission he had haemoptysis,and his cough became even more troublesome.On July 31st,he died suddenly,and prior to death blood gushed forth from his mouth.

The post-mortem examination revealed an aneurysm of the arch of the aorta of a saccular character;it was seen to press on the trachea,with which it communicated by an opening large enough to admit a No.8 catheter.The tracheal side of this

opening had a small and recent blood-clot attached to it. The aorta was dilated and presented a large amount of soft atheroma of a syphilitic type, and the heart was in fairly good condition. (See PHOTOGRAPH.)

The liver presented cicatrices on its surface, and was in a congested condition. The spleen and kidneys were much enlarged. The left kidney was nephritic, but the right was normal; each organ weighed eight ounces.

The lungs were congested and oedematous.

This case presents the three common causes of aneurysm - Venus, Bacchus, and Vulcan; but, from the condition of the aorta, syphilis seems to have been the exciting cause.

CASE OF SYPHILIS - HEMICHOREA - INSANITY.

J. R..., aged 37, was admitted to the Leeds Union Infirmary, on July 16, 1908, in a dazed condition. His illness had commenced seven months previously, with what he described as "attacks of falling down". Later on, the left arm and left leg began to shake. He could not give much information on the subject.

He was a furnaceman and had never been married. He had been in the army eighteen years, and had syphilis fourteen years ago; with this exception he had never been ill.

On admission, he was dazed and could not articulate properly. No respiratory lesion was discovered, and the only circulatory abnormality was a systolic murmur at the apex accompanying the first sound. The digestive system was normal.

He could walk only with difficulty, and when he became less dazed he turned very excitable. His voice was indistinct, and his speech stammering. The left arm was constantly moving about in all directions, and he could not control it; the forearm was more involved than the arm itself. The movements did not cease when he attempted to use the arm. The left leg was similarly involved, but in this case the movement was chiefly lateral. The knee-jerk of the left leg could be elicited, but that of the right was absent. The power of the left upper limb was much less than that of the right. There was no apparent departure from normal in the right side of the body.

The movements described ceased when he slept.

There was no improvement in his condition on August 7th; he had delusions and became restless and destructive. He said that he had £40,000 and had obtained the V. C. for saving the King's life the other day. He was removed to an asylum a few days later.

In this case the hemichorea was of syphilitic origin, as was also the insanity.

SYPHILIS - MYOCARDITIS.

T. R..., aged 60, was admitted to the Leeds Union Infirmary, on June 13, 1908, complaining of pain in the left side of the chest, breathlessness, palpitation, and a sensation of impending dissolution - all of four or five months' duration. The pain was confined to the chest and did not radiate down his arms. He was forced to give up work eight weeks before admission.

He was a machinist to trade, and had never been married. He had smallpox when 40 years of age, and syphilis when 30; for the latter condition he was treated a fortnight.

He had never been in the habit of indulging in alcohol to excess.

On admission, he complained of precordial pain. He was rather deaf and had occasional attacks of dizziness. The respiratory system was normal. The heart's sounds were regular, modified, free from murmurs, and indistinct. The impression the sounds gave was that the cardiac muscle was in a state of degeneration. Flatulence and constipation were the only digestive troubles observed. The arteries were thickened, but not sclerotic. He had one attack of angina during his stay in hospital, but in three month's time he left much improved. The heart's sounds were occasionally irregular, and the pulse was weak now and then.

This was a case of syphilitic myocarditis with attacks of angina pectoris, probably associated with sclerosis of the coronaries.

SYPHILIS - DEMENTIA.

W. S..., aged 58, was admitted to the Leeds Union Infirmary, on December 12, 1908. He was a striker by occupation, was married, and had had eleven children - nine of whom died young. He had

been in the army, and had ague and syphilis in India when he was about 22 years of age. He could not give any reliable information, as his memory was defective. His voice was husky, thick, and indistinct. It was with difficulty that one could understand what he said. He complained of attacks of dizziness, and was childish in his ways. His tongue was large and tremulous, and the respiratory system showed no abnormalities. There was a ventricular systolic murmur. His condition did not improve; he became gradually worse, incontinent, and more demented, and died in a few weeks. There were no delusions, delirium, ocular troubles, or convulsive paroxysms.

SYPHILIS - MANIA.

C. K..., aged 23, was admitted to the Leeds Union Informary, on March 25, 1909, in an insane condition, he having previously attempted to drown himself.

He had syphilis when 20 years of age, and had a "stroke" three weeks before admission. The day previous to his reception, he became maniacal and could not be restrained. He was removed to the asylum within twenty-four hours. There was no cardiac lesion, and no signs of hemiplegia could be detected.

He gave the impression of being a typical raving maniac.

SYPHILIS - ARTERITIS - CEREBRAL DISEASE.

S. W..., aged 58, was admitted to the Leeds Union Infirmary, on July 11, 1908, complaining of sickness and dizziness. The day before admission he was sick and giddy, and "felt like a drunken man". He fell of the floor and could not speak, but did not lose consciousness. This is not the first attack of dizziness he has had, but it is his worst. After the attack he felt dazed and inclined to sleep.

He was a coachman, and had never been married. His previous illnesses were typhoid fever and syphilis at the age of 30 years. He had never taken much alcohol.

On admission, he felt heavy, and complained of dizziness and frontal headache. The respiratory system was normal. His arteries were thickened, and there was a ventricular systolic murmur. The

cardiac sounds were regular, but not clear. He was incontinent at times, and had tenderness over the liver. The knee-jerks were sluggish. No other lesions could be detected.

He gradually improved, and was discharged much better than when admitted.

.....

OSSEOUS SYSTEM.

Syphilis of the bones is very common and characteristic, and occurs in all stages; but it is not until the tertiary stage that the full force of the disease falls on the osseous system.

In secondary syphilis, the lesions are slight and transitory; they occur most frequently in the superficial bones - tibiae, clavicles, skull bones, etc.

They are affected with violent pains which are usually bearable during the day, but are sometimes intolerable at night - especially between the hours of 10 and 4. These pains disturb the patient's rest, and may give rise to insomnia; they are called "osteoscopic" (bone-breaking) on account of their predilection for the osseous system. They usually precede or accompany the secondary outbreak, and may persist for weeks. Whether continuous or intermittent, they are typically nocturnal and exist without its being always being possible to connect them with a material lesion. They are sometimes vague and diffuse, but are more often localized to a given bone; they are due to localized syphilitic manifestations.

When no lesion is appreciable, the condition is known as "ostealgia", and the ends of the bones are most commonly affected. The pain may be headache, pleurodynia, sternalgia, etc., according to the bone affected. There is reason to believe that the pain is toxic in origin.

Transient superficial "periostitis", leaving no trace, occurs in secondary syphilis. It chiefly affects the frontal bones, tibiae, ribs and sternum, and is manifested by a local swelling of the periosteum, which is tender on pressure and

subject to typical nocturnal pain. The condition is common and the swelling is ill-defined, adherent to the bone, and not connected with the skin unless inflammation occurs. It is sometimes accompanied by fever, and in such cases closely resembles rheumatism.

Both conditions occur more frequently in weak and debilitated patients.

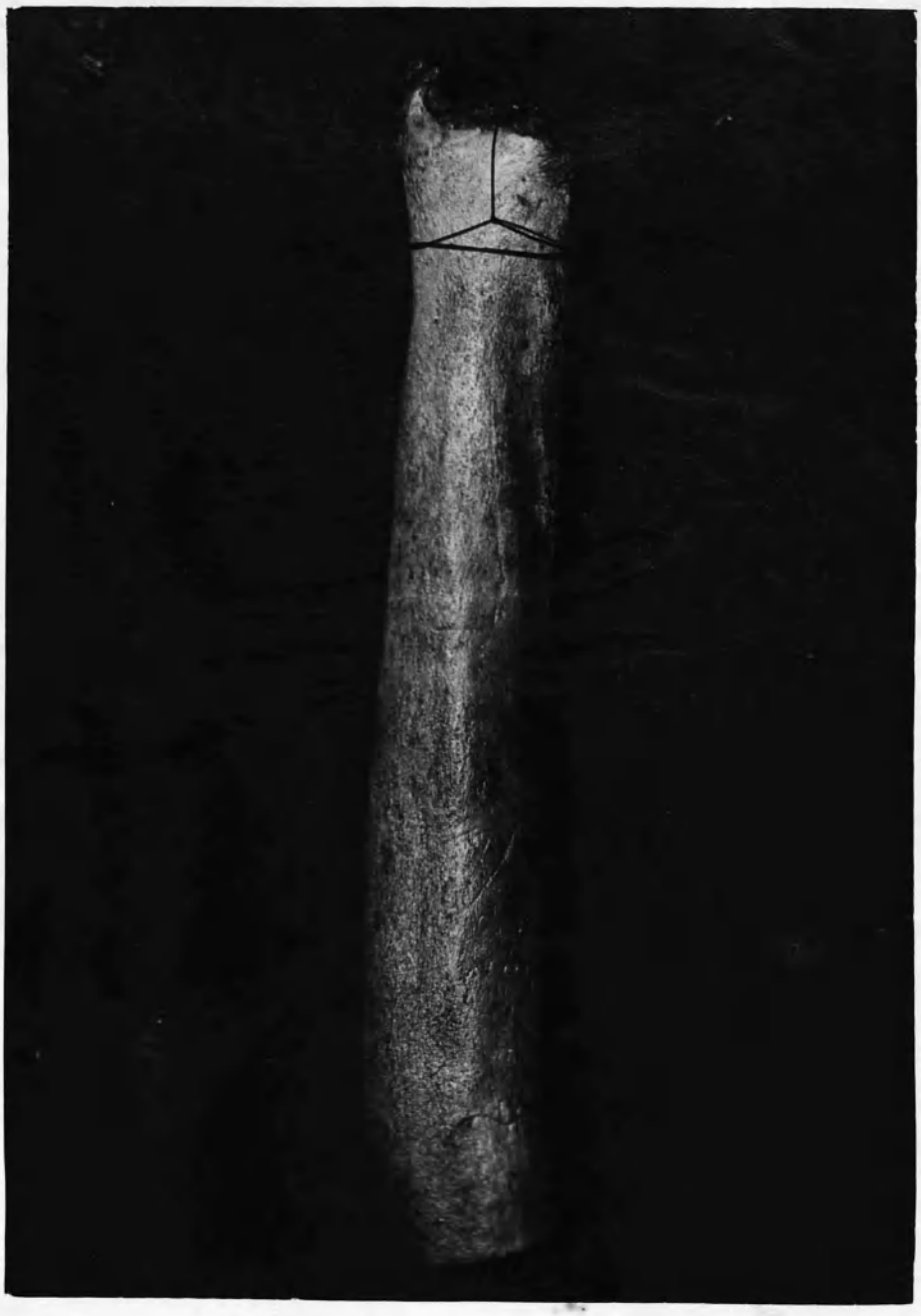
The tertiary lesions of bone are more important, more intense, more lasting, and more serious than the secondary. They may be divided into two broad groups - the inflammatory lesions of a generalized nature, and the gummata.

The first group includes lesions of the medulla, bone, and periosteum; the latter consists of circumscribed tumours in any situation.

In both classes, pain is one of the most important symptoms, and it may come on without any appreciable lesion. It is usually vague at the beginning and sometimes generalized, but soon becomes localized in the neighbourhood of the diseased part. The pain is deep-seated, and the patient described it as if starting from the marrow; it is very active, and, ~~unless~~ if there is ostitis or periostitis, pressure elicits great tenderness. A characteristic of this pain is its liability to nocturnal exacerbations, but such exacerbations are not always present. Sleep is usually impossible, until daybreak ushers in a cessation or diminution of the patient's discomfort. When the lesion is in the cranial bones, headache, vertigo, visual disturbances, etc. occur.

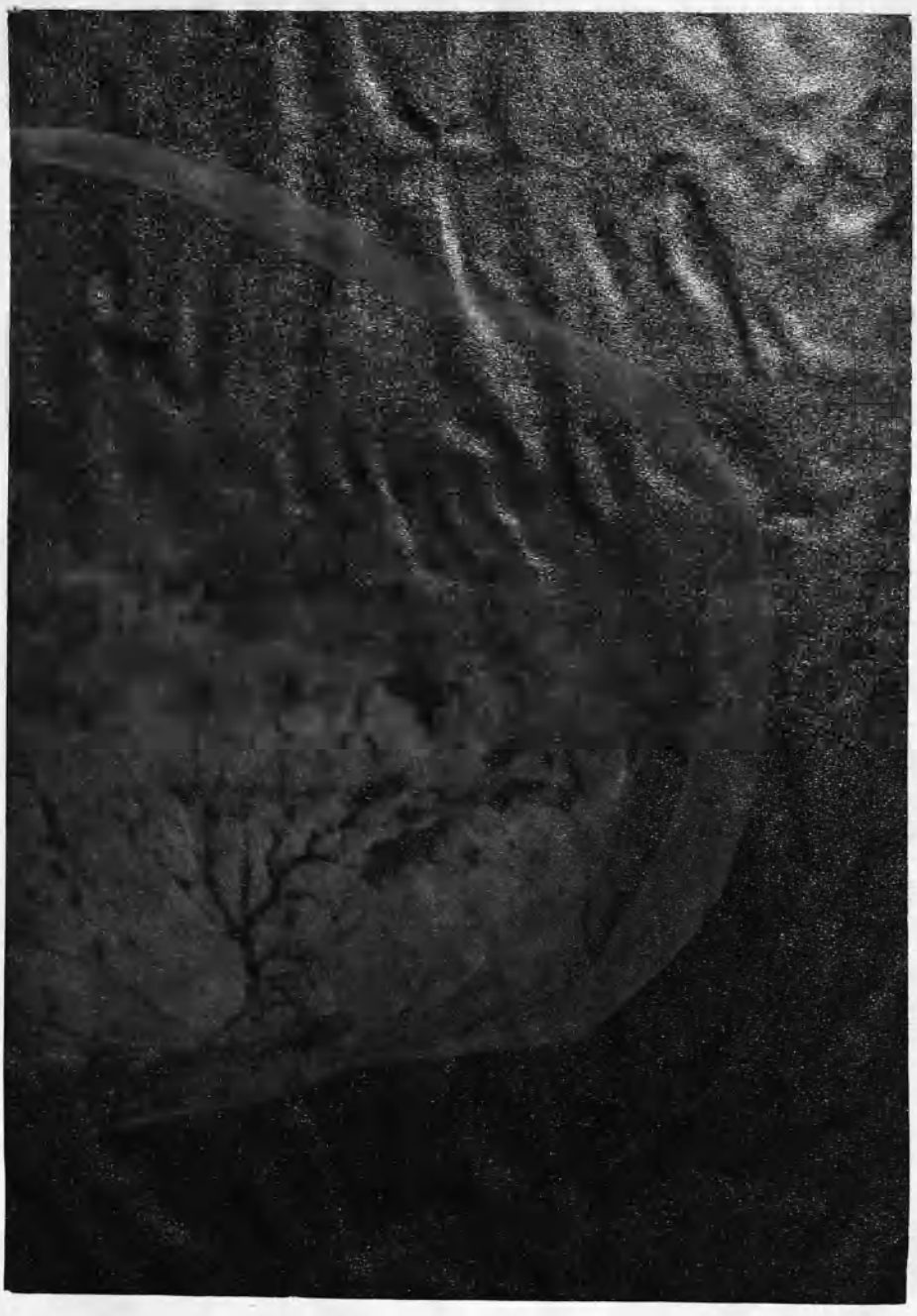
As in secondary syphilis, the superficial bones are most commonly affected. The pathological process is the usual perivascular infiltration of cells.

The onset of periosteal lesions is always the same and is marked by pain, tenderness, and swelling. The pain may be relieved by exercise, and the tenderness is localized and marked. The bone is usually involved as well, and the condition is really an osteo-periostitis. It shows itself as an indistinct fulness or thickening, which is puffy at the circumference and, as a rule, situated near the extremity of a long bone. The process is localized and results in the formation of nodes, which resemble exuberant



SYPHILITIC TIBIA.

p. 124.



OSTEOSCLEROSIS.

SKULL.

p. 124.

calli. These nodes or exostoses are hard, dense, and more or less rounded.

Osteitis and osteomyelitis are practically indistinguishable, and usually affect the whole bone, which in course of time becomes thickened, indurated, and bent. When localized, rarefaction with subsequent fracture may occur. Bones containing a large amount of cancellous tissue are most liable to be affected. Pain and tenderness are the prominent symptoms.

Gummata of bone present themselves as small rounded tumours of a firm or moderately-soft consistence; as growth proceeds, they become softer and adhere to surrounding parts, which become swollen and finally involved in the process. They have the same evolution as gummata in other situations, and may open externally by ulceration. They destroy bone either by absorption or by cutting off the blood-supply and causing necrosis; hence, at the bottom of an ulcer there may be fragments of dead bone. In some cases gummata produce nodes, which result in induration and permanent thickening of the bone. If osteomyelitis or necrosis occur in addition, the symptoms characteristic of these lesions supervene.

The cranial bones, the tibiae, etc., are usually affected. The general symptoms are pain, tenderness, and swelling; but, if the lesion is deep, the swelling may not be appreciable.

In the case of the skull, the lesions are often multiple and usually attack the frontal and parietal bones. Caries is the common result, and gives the skull a characteristic worm-eaten appearance. The gummata may be external or internal, and, when internal, may cause headache and convulsions. When external, a protuberance followed by a depression occurs, and the scalp feels boggy over the affected parts.

In the case of the palate bones, perforation is a common sequel.

The sternum may be affected, and in consequence thereof the mediastinum is often involved with resulting praecordial pain, dyspnoea, angina, and lesions of the pleura and pericardium.

The gummata may involve the vertebrae and cause the so-

called "syphilitic spine", which in some respects resembles Pott's curvature.

Syphilis of the osseous system may affect various structures secondarily. The cranial exostoses may involve the brain and orbit; in the case of the former, the lesion varies in situation, and consequently the symptoms vary; in the case of the latter, the optic, the third, the fourth, and the sixth nerves may be pressed upon - blindness and paralysis of the ocular muscles resulting. Blood-vessels and nerves, when so affected, cause oedema and muscular atrophy, pain, and interference with sensation respectively. Muscles may be implicated so as to interfere with their movements.

Bone lesions are chronic, and usually they are progressive in character; they may first show themselves when a spontaneous fracture occurs, or they may interfere with the union of a traumatic fracture.

A lesion of syphilis that deserves some attention is "dactylitis". It is more common in hereditary than in acquired syphilis, and is an affection of the phalanges of the fingers and toes, but is more common in the former. The bones alone are involved in infants, and the first phalanx of the index finger is the usual site. The lesions tend to be multiple, but not symmetrical.

There is a painless swelling of the finger, which appears broader and longer than normal; the skin may be red and glazed on account of the stretching, but is not involved in the process. In the case of children, spontaneous resolution is the usual result, but in later life disfigurement is not uncommon, and the soft parts may be affected.

ARTICULAR SYSTEM.

The joints are often affected in the course of syphilis - especially in the secondary and tertiary stages of the disease. In the secondary period the lesions are superficial and transient, and leave no trace of the disease; but in the latter, as in all tertiary manifestations of syphilis, they are deep and destructive, and damage the structures to a greater or less

extent.

In secondary syphilis, there is an inflammation of the synovial membrane which simulates rheumatism, and has been called "pseudo-rheumatism". The inflammatory symptoms - heat pain, redness, and swelling - are the same as occur in rheumatism. The larger joints - knee, ankle, elbow, and wrist - are more commonly affected than the smaller.

The pain is usually bearable during the day, but as the shades of night come on, it increases in intensity and may be excruciatingly severe. This is the typical nocturnal exacerbation, which may interfere with the patient's rest and cause insomnia. As a rule, movement of the joint does not increase the pain. The results of the affection in the joint are evidenced by limitation of movement and a slight stiffness. Effusion may occur secondarily.

Another syphilitic articular affection is "arthralgia". In this condition, there is no lesion appreciable to account for the pain, which varies greatly in intensity and is subject to nocturnal exacerbations. The absence of the nocturnal exacerbation is not evidence that the cause is not syphilis, as these exacerbations are not constant. The joints affected are the larger articulations, it being rare to find a small joint attacked. In fact, syphilis seems to have a predilection for the larger joints. Sometimes more than one joint is affected and, if such is the case, one usually remains more painful than the others.

The condition is an early one, and it usually appears in the first months of the disease. It is part of the general toxaemia.

"Hydrarthrosis" is a rare condition in acquired syphilis, but it occurs occasionally in the hereditary variety. It is a painless effusion unaccompanied by any inflammatory symptoms, and has rarely ever been seen outside the knee-joint. Like the arthralgia, it is an early secondary lesion, and it occurs during the early months of the disease.

The tertiary affections of the joints are much less common than those of the bones, but their importance is not

diminished on that account. The lesions consist of arthritis and osteo-arthritis; both are chronic conditions and different stages of the same process. The latter may be associated with gummatous periostitis and may be polyarticular.

GUMMATOUS ARTHRITIS.

Gummatous arthritis usually originates in the capsule or ligaments; it is a chronic affection with an insidious onset. There is a painless, and usually gradual, enlargement of the joint, due to periarticular thickening, as a rule, but sometimes - though rarely - to secondary hydrarthrosis. The capsule is generally thickened and, on palpation, indurated nodules may be recognized. The neighbouring bone is thickened; the knee-joint is most commonly affected, and consequently it is the femur that is thickened in most cases. The lesion is limited to one joint. A piece of the thickened structures may become detached, and cause what is known as "mouse-joint". Effusion is present to some degree in all cases; it is a secondary condition.

Secondary pyogenic or tuberculous infection may occur and give rise to the symptoms of the particular disease produced.

The gummata are felt as hard nodules of varying size and, if they are superficial, globular shape. Later on, they may soften, break down, and cause ulceration, or acute arthritis may supervene.

OSTEO-ARTHRITIS.

Osteo-arthritis is a comparatively rare condition; it usually affects the knee-joint, involving the lower end of the femur. The epiphysis and diaphysis of the bone are affected, and extensive thickening may result. The synovial membrane is unaffected. Secondary effusion may occur, and muscular atrophy may be marked. There is usually some deformity, and grating can sometimes be elicited. The movement of the joint is more or less impaired. Gummata are often present and break down in untreated cases, causing sinuses.

Pain is the most constant and characteristic symptom of tertiary syphilis of the joints, and it is subject to nocturnal exacerbations. In osteo-arthritis prodromal pains, of a nocturnal character, are very common. The swelling is slow and sometimes

intermittent. The movements of the joint are, for the most part, normal, but are sometimes limited.

The knee-joint is the favourite seat of such lesions, but other joints are not exempt. The course is chronic, but there is no tendency to suppuration, and recovery is the usual termination. Ankylosis is more common in gummatous arthritis than in osteo-arthritis.

In the case of the joints in the spinal column, the cord may be involved by extension of the pathological process or by pressure, and symptoms, varying with the region affected, occur.

Syphilis of the joints may simulate any articular affection - from the most acute to the most chronic; and the patient may be wrongly treated in many instances, as the diagnosis is not easy. In most cases the condition is chronic and painless, and the patient does not complain until the lesion is extensive.

MUSCULAR SYSTEM.

The muscles are affected in the secondary and tertiary stages of syphilis. Apart from the muscular pains which occur in secondary syphilis, the muscles are rarely involved in the secondary stage. The myalgia may affect the muscles of the neck and cause torticollis, or it may affect the leg muscles; no muscle is exempt. The pain is of a typical nocturnal character, and is excited by movement. Instinctive rigidity, therefore, results. The muscle may or may not be sensitive to pressure.

Myalgia, arthralgia, tenosynovitis, and periostitis constitute a syndrome closely resembling rheumatism, and the diagnosis may be very difficult - especially if fever is present.

Transient contractures also occur in certain cases of secondary syphilis.

In tertiary syphilis, three important muscular affections are found. Contracture - also called "Ricord's contracture" - comes on suddenly or gradually; it usually occurs at the elbow, affecting the biceps or triceps. It is practically a painless condition, so long as no attempt is made to overcome it, and then the pain is severe. It is not a common condition and occurs

early, usually within the first year. There may be nocturnal pain, and the joint to which the muscle is attached is fixed.

The course is chronic, but restoration of function is the usual termination, although the condition may persist as a hysterical affection.

MYOSITIS.

Interstitial Myositis.

In interstitial myositis there is a diffuse infiltration, beginning in the connective tissue and involving the muscle secondarily. The muscular tissue is destroyed, atrophy and shortening occur, and finally fibrous, cartilaginous, or osseous degeneration supervenes. The surrounding aponeurosis may participate in the change. The greater part of the muscles is usually involved, and there may be associated gummata. The muscle is swollen, dense, and sensitive, but is not adherent to the subcutaneous tissue.

Gummata.

Instead of a diffuse infiltration, a localized swelling forms. It is a gumma, and is composed of the same elements as any other gumma. The first stage is the stage of formation, and in this stage it grows and becomes a hard, definite, and more or less circular tumour; the next stage is that of retrogression, and in this stage the gumma may soften and burst externally or, as is more often the case, become fibrous or osseous. The muscles commonly affected are the sterno-mastoid, the trapezius, and the glutei. The gumma may become encysted or so hard as to simulate malignant disease.

Symptoms of Myositis.

No muscle is exempt, but the trapezius, sterno-mastoid, flexors of the forearm, and biceps are most commonly involved, and the condition may be primary or secondary.

Pain is common to both forms, but in gummata it is worse during or immediately after contraction. Palpation usually elicits tenderness. In interstitial myositis the muscle is enlarged generally, and is dense; but in gummata, when they are superficial, a definite, circumscribed, hard, and tender lump is felt at first: later on, it softens or becomes hard - on account

of fibrous or osseous changes - and the symptoms vary accordingly. Gummata vary in size up to a hen's egg, are mobile when the muscle is at rest, and fixed when the muscle is contracted. The inconvenience varies with the muscle affected.

The course of myositis is slow and its onset insidious. Recovery is the usual termination, but permanent contraction may occur.

The condition may be mistaken for rheumatism or, when the gumma softens, for abscess.

Under the muscular affections due to syphilis interstitial fibrosis and gummata of the heart and tongue naturally come; but, as these conditions have been described under affections of the heart and tongue respectively, no further mention of them need be made.

It should be noted that syphilis is a cause of secondary myositis ossificans.

TENDONS AND APONEUROSES.

The tendons and aponeuroses are rarely involved, except by secondary extension. Gummata and induration occur and, unless inflammation supervenes, the condition is not serious. It is thus seen that the tendons and aponeuroses do not escape, although their vascularity is slight. The latter are less often affected than the former.

Gummata are usually superficial and can be felt as firm, solid, circumscribed, globular swellings, which may soften and ulcerate. They are of varying size, and are more or less prominent; before they ulcerate, the skin may be involved and become red. Ossification may take the place of ulceration.

The tendons most liable to the condition are those of the biceps and triceps, as well as the tendo Achillis.

There is not much pain associated with the lesions, but, in the case of the tendons, muscular contraction may give rise to it.

TENDON SHEATHS.

Acute or chronic tenosynovitis occurs in secondary syphilis, and gives rise to pain. There may be associated periostitis

or arthralgia. The fingers are usually involved, and the condition may be unilateral or bilateral. There is swelling, and in the acute condition symptoms of inflammation occur as well.

Gummatous tenosynovitis occurs, but is uncommon.

BURSAE.

Acute or chronic bursitis, with effusion, may complicate arthritis, but it is rare. It may be primary or secondary, and is sometimes symmetrical. Swelling is the chief symptom. This swelling is confined to the bursa and, when due to acute bursitis, is accompanied by pain.

Gummatous bursitis is a common condition about the knee, but is rare in other situations. It is a painless condition, and there is no inflammation unless it is secondary. The lesion is generally primary and causes swelling of the infra - patellar bursa. The skin over this bursa reddens, becomes thickened into ridges, and finally ulcerates - giving rise to a typical gummatous ulcer.

GLANDULAR SYSTEM.

The various glands of the body are affected in syphilis so often that it appears as if the spironema pallida had a predilection for glandular tissue. The lymphatic glands are most often affected, but the other glands - including the ductless - are by no means exempt. It has been suggested that syphilitic lesions of the ductless glands disturb the internal secretions, and so cause the dystrophic effects observed in hereditary syphilis.

SUPRARENAL GLANDS.

The suprarenal glands do not escape the all-pervading influence of the syphilitic virus, and are found to be the seat of lesions in both hereditary and acquired syphilis. The knowledge of the lesions produced is by no means extensive, but what is known tends to prove that syphilis of the suprarenals is not a pathological curiosity. Possibly future researches will show that the syphilitic affections of these glands are associated with changes in the economy which are not understood at present.

The changes that have been observed are a diffuse

infiltration and gummata.

Lancereaux and Virchow (Lancereaux.- Treatise on Syphilis) have observed enlargement of these glands in persons who have succombed to visceral syphilis; and Fournier (Lancereaux.- Treatise on Syphilis) has come across fatty degeneration which he considers to be syphilitic.

In hereditary syphilis enlargement of the suprarenal capsules is not uncommon, and some cases of Addison's disease are probably due to hereditary syphilitic lesions of the suprarenals. The changes found consisted of an increase of the connective tissue and subsequent atrophy of the glandular elements.

Levaditi (Marshall.- Syphilology) found the spironema pallida in the glands of infants affected with hereditary syphilis.

The w r i t e r has met with enlargement of the suprarenals in hereditary syphilis, and has also found them to be firmer than normal in cases of the acquired variety of the disease; in one case of acquired syphilis they were distinctly enlarged and very firm.

In connection with these glands, Josué (Marshall.- Syphilology) has produced arterio-sclerosis in rabbits by intravenous injection of adrenalin. The exact significance of this is not known; but doubtless it is an important discovery, as it may shed light on the much-discussed question of arterio-sclerosis.

The symptoms produced by syphilitic lesions of the suprarenals are not characteristic, and diagnosis of a case during life is practically impossible. Bronzing of the skin has been observed in some instances.

It is usual to think of excessive pigmentation in connection with lesions of the suprarenals; but may not defective pigmentation be a sign also?

THYMUS GLAND.

Syphilitic lesions of the thymus gland are very rarely observed.

Lancereaux (Treatise on Syphilis) states that certain

observers found a condition characterized by the presence of pus, disseminated or collected in cavities in the substance of the gland, and suggests that the condition was due to softened gummata.

In addition to this doubtful condition, genuine gummata have been described.

THYROID GLAND.

The thyroid gland rarely presents any lesion due to syphilis, but the possibility of such lesions must not be overlooked. Sometimes the gland is increased as a whole, and at other times it is more or less firm in consistence and presents yellowish areas. The microscopical appearances are increased glandular elements, and some degree of fatty degeneration. Gummata have not been observed. It is said that enlargement of the thyroid occurs in women with longstanding syphilis.

In hereditary syphilis, the internal secretion may be disturbed, and some cases of myxoedema may be traced to such a disturbance.

PITUITARY GLAND.

Affections of the pituitary gland are very uncommon in syphilitic subjects; Meyer and Virchow (Lancereaux.- Syphilis) have described syphilitic lesions of this gland, and Lancereaux (Treatise on Syphilis) has seen a gumma of it.

As in the case of the other ductless glands, hereditary syphilis, may affect the internal secretion and cause acromegaly.

PANCREAS.

Gummata and interstial fibrosis may occur in the pancreas, but they are pathological curiosities. Although syphilitic lesions are so uncommon, their existence must be recognized. The relationship between syphilis and diabetes mellitus has been considered (vide supra), and in some cases interstitial fibrosis of the pancreas has been observed.

In hereditary syphilis, lesions of the pancreas are more common than in the acquired disease, but the lesions are pathologically the same.

Interstitial fibrosis is the more common lesion, and consists of a perivascular cell-infiltration resulting in an

overgrowth of connective tissue and atrophy of the glandular elements.

The symptoms of syphilis of the pancreas are those of diabetes; they are not peculiar to syphilis.

SALIVARY GLANDS.

As in the case of the pancreas, syphilitic lesions of the salivary glands are exceedingly rare, and consist of gummata and interstitial fibrosis. Any of the glands may be the seat of the lesion. The conditions are not fully understood, but they must not be overlooked.

Lancereaux (Treatise on Syphilis) described fatty degeneration of the submaxillary gland, with thickening of the fibrous septa, in a syphilitic patient.

Neumann (Marshall.- Syphilology) has reported cases of syphilis of the parotid and sublingual glands.

The symptoms are enlargement and hardening of gland, of a chronic nature and usually unilateral.

LYMPHATIC GLANDS.

The lymphatic glands may be affected in all stages of syphilis, but the primary and secondary adenitis are the more important lesions.

In the primary stage the adenitis causes enlargement of the glands nearest the chancre. The enlargement is painless, the glands are discrete and not adherent, and there is no periadenitis. An important feature of the enlarged glands is their hardness. They give rise to practically no symptoms, the only complaint being of their undue prominence.

The chancre is usually on the genitals, and consequently the inguinal glands are most frequently involved; but the submaxillary, epitrochlear and axillary, and the lateral cervical are affected when the chancre occurs on the chin or lip, upper limb, breast, and tonsil respectively.

The other points of primary ademitis have been discussed above, and the complications will be taken up later on.

The adenitis of the secondary stage is the result of a general condition, but some groups are more liable to be affected than others. The chain of glands along the posterior border of

the sterno-mastoid, the epitrochlear, and postauricular are commonly affected. The condition is probably due to a diffusion of the spironema pallida throughout the body. It may precede or immediately follow the syphilides, usually lasts for from one to three months, and is rare after the first year. The condition is quite independent of any skin or visceral lesion.

The characters of the enlarged glands are the same as those of the primary adenitis; the glands are hard, discrete, movable, and painless - there being no periadenitis or tenderness.

No symptoms result, as a rule, and they may not even be noticed by the patient. Tenderness on pressure results when they are situated on or near a nerve.

The epitrochlear glands are felt as small, hard, movable nodes about an inch above the internal condyle of the humerus in front of the epicondylar ridge and behind the inner edge of the biceps. The number rarely exceeds two, and they are to be felt with ease when the elbow is flexed. It is said that they are so uniformly enlarged in syphilis as to be almost pathognomonic, but this is open to question.

The posterior cervical glands are easily palpated and commonly enlarged, as are those behind the ear.

The superficial glands, it must be remembered, are not the only glands involved, but they are the most easily examined. The abdominal glands have been found enlarged.

Tertiary lesions of the lymphatic glands are rare, but such have been described. Gummata of the cervical glands have been reported. The symptoms consist of swelling, hardness, and usually irregularity of the gland. Pain is not a feature. The gland may break down and ulcerate.

SUBCUTANEOUS TISSUE.

The subcutaneous tissue is involved in the tertiary period of syphilis, and the lesions consist of gummata that usually break down and give rise to typical gummatous ulcers. The gummata are irregular masses, varying in size from small bodies to tumours the size of an egg. Their evolution is slow and painless, and the patient usually becomes aware of their existence by accident.

They usually involve the skin and perforate it, but they may be absorbed without doing so. There may be one or many; the common situations are the legs, chest, shoulder, etc. The symptoms are not sufficient to attract attention until ulceration has occurred. This condition has been discussed under Pathology and General Symptomatology, and no further details will be given here.

GENITALS.

The genitals are the commonest seat of the primary lesion of syphilis, but are often affected in the secondary and tertiary stage of the disease.

The pathology and symptomatology of HARD CHANCRE have already been dealth with, and the COMPLICATIONS will now receive attention.

INFLAMMATION is a common complication, and is caused by pyogenic microorganisms which are introduced by means of dirt and discharges. It occurs most frequently in dirty and debilitated persons.

The chancre becomes red, swollen, and painful; in addition to these inflammatory symptoms, there is a tingling or burning sensation, which may or may not be accompanied by itching. The degree of inflammation varies, and in some cases is severe enough to cause sloughing. The inguinal glands are involved in the process, and inflammatory symptoms are superadded to the syphilitic condition. The glands swell, become matted together as a result of periadenitis, are very painful, and may suppurate. The skin is adherent and inflamed. Suppuration is a very common sequel, and it causes a suppurating bubo. As a result of this process, the swelling nearly always requires incision, and the scar in the groin - so often found in syphilitic patients - is the result. The lymphatics connecting the chancre and glands are not exempt, and a lymphangitis - evidenced by redness, slight swelling, and pain - occurs. Oedema, resulting from the inflammation, is not uncommon, and phimosis and paraphimosis may also occur.

GANGRENE may supervene on a chancre, and usually occurs after ulceration. The sore becomes darker in colour, and the pain

is marked. The ulceration extends and destroys the tissues, and at the same time there is usually an inflammatory areola round the gangrenous area. The condition causes the formation of successive sloughs, which are detached and increase the excavation. An inflammatory adenitis, sometimes resulting in suppuration and closely resembling that described above, occurs. The secretion is sanious and contains dead tissue.

PHAGEDENA is a well-recognized, but comparatively rare, complication. At one time it was of frequent occurrence, but nowadays one rarely comes across a case. Phagedena is simply a severe form of gangrene. The ulcer becomes dark in colour, and painful The base is oedematous and the floor covered with necrotic tissue. It is said to cause loss of substance in some cases. The course is very rapid and difficult to control.

A SOFT SORE or GONORRHOEA may occur along with the hard chancre, and complicate the condition. The latter rarely causes difficulty in diagnosis, unless it is complicated by oedema, etc., and so obscures the chancre. The symptoms of syphilis are not altered in the least. The former is a more troublesome condition to the physician, as it is sometimes difficult to say whether a patient has syphilis or not. The soft sore may occur previous to, overlap, or implicate a hard chancre. The last is the real complication, and it causes its own symptoms - inflammatory bubo, etc. - in addition to those of syphilis.

INDURATED OEDEMA consists of a mass of lymphatic induration surrounding the chancre, obstructing the lymphatic circulation, and causing oedema. It may be seen complicating the chancre in some cases.

Secondary syphilis frequently attacks the penis and scrotum, and the affection is a SYPHILIDE. It is important to note that genital syphilides are very contagious and frequently propagate the disease. Any syphilide may occur; mucous syphilides are common about the prepuce, and papular syphilides and condylomata are not uncommon.

Mucous syphilides merit special consideration. When situated about the glans and prepuce, they may cause balanitis and phimosis, and in neglected cases sloughing of the prepuce is a

possible contingency. They sometimes undergo a process of secondary induration, forming Fournier's "pseudo-chancres", which may be mistaken for primary chancres and account for some cases of reinfection. The lesson to be learnt from such a condition is that induration is a general syphilitic condition, due to intense perivascular infiltration, and not a peculiarity of the chancre.

The genital syphilides are liable to become eczematous and, when neglected, to cause oedema of the scrotum.

Tertiary syphilis of the penis manifests itself in various ways. GUMMATA of the penis occur now and again, and are probably more common than is generally supposed. When ulcerated, they resemble hard chancres, and doubtless some gummata are diagnosed as chancres. Another point that may cause a diagnosis of chancre is that a gumma often occupies the site of the former chancre.

Tertiary "CHANCRIFORM SYPHILOMA" is a term given by Fournier to a small circumscribed gumma which becomes eroded and ulcerated. It usually occurs after the third year of the disease; it is generally situated about the balano-preputial furrow, but may occur on other parts of the penis and on the scrotum. It is not accompanied by any enlargement of the lymphatic glands. It simulates a hard chancre, and it may explain some cases of reinfection.

The TERTIARY SYPHILIDES of the penis are the foundation of many second attacks of syphilis, so-called second attacks. They have misled many physicians, and they will probably continue to do so as long as diagnosis is a mere matter of form. They simulate chancre in all its types, and every point that can be gleaned from the patient must be carefully considered before a diagnosis is given.

A DIFFUSE GUMMATOUS INFILTRATION, as occurs elsewhere, may involve the penis and deform it in various ways.

PHAGEDENA may involve the tertiary ulceration of the genitals just as it does the chancre.

The URETHRA may be the seat of primary, secondary, or tertiary syphilis. CHANCRES, SECONDARY ULCERATION, and GUMMATA occur; and

although they are not common, their existence must be recognized.

The EPIDIDYMIS is involved in secondary and tertiary syphilis. In secondary syphilis the globus major is the seat of the affection, and is felt as a hard and solid lump at the top of the testicle. The condition is usually unilateral. It is not associated with any symptoms. GUMMATA are rare.

Syphilis of the TESTICLE is comparatively common, and generally appears in the tertiary period. The lesions consist of INTERSTITIAL FIBROSIS and GUMMATA.

Interstitial fibrosis is a chronic condition which generally affects the whole connective tissue of one or both testicles. This causes an enlargement which is hard and solid, but later on atrophy occurs and a diminution in size results. The epididymis and cord usually escape, and the skin is not involved. There is usually a certain amount of effusion into the tunica vaginalis.

The onset is insidious and, if untreated, the testicle may become functionless as a result of the atrophy. If both testicles are involved, sterility may result.

Gummatous orchitis is an advanced degree of the above, and may exist with it or occur independently. There may be one gumma or many, and the size varies; but they are seldom larger than a marble. The cord and epididymis are sometimes involved by extension. Ulceration and perforation of the scrotum may occur, but resolution is the usual termination.

Syphilitic lesions of the testicle begin insidiously, and being painless, as a rule, are only observed by the patient accidentally; sometimes the enlarged testicle may cause a dragging sensation, and so attract attention. In interstitial orchitis, a uniform and hard testicle is felt, and an absence of pain or tenderness is noticed; the cord remains unaffected, the scrotum is unaltered, and the lymphatic glands are not enlarged. Gummata, when superficial, give rise to nodular testicle, which is hard as well; in most cases, the cord is involved sooner or later, and the skin unaffected, but in some cases ulceration occurs.

Both conditions diminish the sexual appetite. The patient gradually finds out that his desire for sexual intercourse

decreases. If both testicles are involved, sterility may result.

Syphilitic lesions of the testicle are very chronic, and atrophy is not an uncommon result.

The BLADDER, PROSTATE, and PELVIS are rarely syphilitic. Only three cases of syphilis of the bladder have been reported. Some enlargements of the prostate may be syphilitic and regarded as due to other conditions. The pelvis is practically never affected.

FEMALE GENITALS, etc.

CHANCRES are common syphilitic lesions of the external female genitals, and they may occur on any part thereof. Secondary SYPHILIDES also occur frequently. Both conditions have the same characteristics and symptoms as when occurring in the case of the male.

ELEPHANTIASIS of the vulva is a diffuse hypertrophic syphiloma affecting the labia; it is not productive of any symptoms.

Diffuse or circumscribed GUMMATA are found, and often terminate in ulceration. They are generally multiple, and consequently numerous ulcers are found. No part is immune, and one part is as liable as another. The ulcers are of a more or less typical gummatous type. Vaginal discharges and filth are liable to cause secondary inflammation with all its train of symptoms. Various deformities may result.

The vagina may be secondarily infected from the vulva, but gummata may occur and cause recto-vaginal fistula.

The OVARIES and FALLOPIAN TUBES are liable to syphilitic affections, but are not often the seat of such lesions. A chronic thickening of the walls and obliteration of the lumen of the Fallopian tubes have been described, and gummata have been observed.

The ovaries are subject to the same lesions as the testicle - interstitial fibrosis and gummata. The study of these lesions has been imperfect, but it would NOT be grave error to assume that the ovaries are affected with the same lesions and go through the same changes as the testicle.

Lancereaux (Treatise on Syphilis,Vol.i.) records cases in which syphilitic ovaritis and gummata were suggested.

The symptoms are not characteristic of syphilis.A dull, aching pain and tenderness in the region of the ovary occur.As in the case of the testicle,the sexual appetite may be diminished,and sterility supervene.Disorders of the menstrual function may occur.

The UTERUS is liable to be affected in tertiary syphilis. In primary syphilis the lesion is not uncommonly situated on the cervix;inthe secondary period syphilides may implicate the uterus;and in the tertiary period ulceration,gummata,and fibrosis occur.

When the endometrium is affected by the ulceration,the symptoms are haemorrhage and a mucopurulent discharge.

Gummata and fibrosis cause haemorrhage,interference with the ovarian functions,and abortion.Atresia of the uterine cavity may result.

The uterus may be affected more often than is generally supposed,and the relation between the uterus and a syphilitic foetus should be taken into consideration.

The MAMMARY GLAND is not infrequently the seat of chancres, and in tertiary syphilis it may be affected with interstitial mastitis and gummata.

Lancereaux (Treatise on Syphilis,Vol.i.) gives cases of both conditions,but the affections are not common.

The gumma usually breaks down and gives rise to a typical gummatous ulcer.

EYE.

Syphilis is one of the most common cause of eye diseases, especially serious ones;some of these are easily diagnosed, while others are recognized only with great difficulty.Every disease of the eye due to acquired syphilis has its analogue in hereditary syphilis,but some are more common in the one case than in the other.The lesions produced are serious,on account of the importance of the organ and the fact that a slight lesion may cause irremediable damage.Syphilitic eye diseases

may be primary or secondary;and,as the latter are of then indicative of cerebral lesions,all ocular changes are of grave import.

Primary,secondary,and tertiary syphilis may affect the eye and its appendages,but the secondary and tertiary manifestations are the ones that cause the most mischief..

The chancre occasionally occurs on the eyelids and conjunctiva,and presents itself as a hard,fleshy,eroded mass,which causes enlargement of the preauricular glands.It is important to consider it,as symblepharon,ectropion,or entropion may result.

The lachrymal ducts and eyelids may be involved with secondary or tertiary syphilis and gummata,but they only require recognition.The lesions that call for careful consideration are the numerous and varied affections of the eye itself which occur in secondary and tertiary syphilis.

KERATITIS.

Keratitis is one of the most important and serious affections in hereditary syphilis,but in the acquired variety of the disease it is less common and less serious.The first symptom to attract the patient's attention is the fact that his sight is not so good as it was;he finds that he cannot see objects clearly.He may or may not pay much attention to the fact,but,as he gets no better,he usually consults a physician. As the dimness of vision increased,there may have been slight pain in the eye,an inability to tolerate strong light,and some degree of lachrymation.When the physician sees the eye,he finds the cornea more or less lustreless,according to the stage of the disease.The most advanced stage presents a ground-glass cornea,with blood-vessels running through it;an earlier stage simply shows opacity.The blood-vessels surrounding the cornea are injected,and there may be associated iritis.

The disease is very chronic and may clear up,but an opacity of the cornea,of varying degree,is a common result.Many years after the condition has subsided,a staphyloma may supervene.

While the disease is running its course,iritis,iridocyclitis,and irido-choroiditis may occur.

In hereditary syphilis both eyes are not infrequently involved, but in acquired syphilis the condition is usually unilateral.

CYCLITIS.

Cyclitis does not often exist alone, but is usually accompanied by iritis. It causes pain, of a neuralgic character, about the eye and circumscribed injection. The media are hazy, and dimness of vision consequently occurs. The tension of the eye is slightly diminished.

IRITIS.

Syphilis is one of the commonest causes of iritis, and iritis is one of the most frequent manifestations of ocular syphilis. It usually occurs within the first year, and women seem to be more liable to it than men. It is often double; both eyes may be affected simultaneously, or one may be involved before the other.

There are four distinct varieties of syphilitic iritis, viz., plastic, serous, papular, and gummatous, but the symptoms are practically the same in each.

The cardinal signs of iritis are contracted pupil, pain, circumcorneal injection, dimness of vision, and dull iris. They occur in iritis due to any cause, and syphilitic iritis is not an exception to this rule.

The pain varies in intensity, and is often very great; it spreads from the eye to the brow and temple and, if the eye is exposed to light, becomes almost unbearable. It may also be severe at night, when it gives rise to excessive lachrymation. The patient finds it difficult to open his eye in a bright light, and in some cases he cannot do it at all.

Hyperaemia is a conspicuous symptom, which manifests itself in chromatic alterations in the iris; the iris loses its normal colour and lustre. Circumcorneal injection - a characteristic sign - is also a result of hyperaemia, and it shows itself as a bright-red ring round the cornea.

As a result of the inflammatory condition, the pupil is more or less contracted and responds sluggishly to mydriatics; sometimes the iris is adherent and dilates irregularly when

atropine is used.

Sometimes nodules appear in the iris, and give rise to a characteristic picture; they vary in size, are somewhat red, and usually grow rapidly on the pupillary margin. Occasionally a few coalesce and convert portions of the pupillary margin into a thick fold; when such a condition is seen in an eye, syphilis should be suspected at once.

Relapses are common, and disease of the choroid, retina, or optic nerve may accompany the condition. Persistent adhesions and glaucoma are complications and sequelae.

CHORIO-RETINITIS and RETINITIS.

The choroid and retina are so intimately connected that the one is rarely involved without the other. Chorio-retinitis is a comparatively common syphilitic lesion.

The cardinal symptom of the condition is dimness of vision, which progresses slowly and painlessly. It is unilateral at first and, as there is no pain, the mischief is usually done before the patient seeks advice. In some cases slight pain may occur. Some degree of colour-blindness and inability to see in the dark are common complaints.

The condition may be central, with rapid impairment of sight; disseminated, with the condition chiefly peripheral; or anterior, with a hopeful outlook.

The papilla is hazy, and its margin is blurred and indistinct; patches are seen on the choroid.

The course is extremely chronic, and cataract or glaucoma or optic atrophy may supervene.

OPTIC NEURITIS.

Optic neuritis is a common syphilitic nerve lesion, and it may be primary or secondary to cerebral, arterial, or osseous lesions; sometimes it is unilateral, but frequently it is bilateral.

The symptoms are not numerous or severe enough to attract the patient's attention; in many cases the patient is not aware of the condition and seeks advice when atrophy has occurred. In most cases a certain degree of blindness occurs, and scotomata are frequent.

Ophthalmoscopic examination reveals the choked-disc and not infrequently neuro-retinitis.

The optic disc is swollen, projects abnormally, and overhangs the retina; the edges are blurred and indistinct and run into the retina; the veins are large and tortuous, while the arteries are small and insignificant.

OPTIC ATROPHY.

Optic atrophy is frequently syphilitic in origin, and may be primary, but is usually secondary. The only symptom it causes is gradual and progressive loss of vision. Ophthalmoscopic examination shows a disc with sharply-defined margins and of a grayish or whitish colour.

GUMMATA.

Gummata of the eyeball occur, but they do not of themselves cause any symptoms. They give rise to some condition, such as iritis, which produces special signs and symptoms.

MOTOR AFFECTIONS.

Paralysis of the various motor nerves of the eye is very common and gives rise to squint, homonymous or crossed diplopia, headache, vertigo, nausea, and limitation of the movements of the eye.

The third nerve is most frequently affected (vide supra), and the results are ptosis, dilated pupil, squint, and fixation of the globe. External or internal ophthalmoplegia may also occur.

The sixth nerve is sometimes affected, and inward deviation of the eye and homonymous diplopia result.

The fourth nerve is rarely paralyzed. The superior oblique muscle is rendered inactive when it is so.

SENSORY AFFECTIONS.

Occasionally sensory affections are caused by syphilis. The exact nature of these lesions is not fully understood. Pain, of varying intensity, and an insensitive cornea, which consequently may be perforated, are the symptoms. There is no inflammatory reaction or photophobia.

NOSE.

Secondary and tertiary syphilitic lesions of the nose are not uncommon; the former, like all other secondary manifestations, are slight, but the latter are the cause of offensive and disfiguring conditions.

The secondary syphilides that affect the nose are chiefly the erythematous and the papular; mucous patches are uncommon. They cause slight inflammatory reaction and irritation with resulting discharge and crust-formation; fissures are liable to develop.

Gummata of the nose occur frequently and cause rapid destruction of the tissues. Their onset is insidious, and the patient does not consult a physician until the disease is so far advanced as to produce symptoms. The symptoms that cause him to seek medical advice are a sense of obstruction, usually in one nostril, a weakening of the sense of smell, and a foul discharge consisting of dirty crusts, blood, fragments of necrosed tissue, etc.

When the nose is examined, perforation of the nasal septum, with ulceration of the mucous membrane, is seen. A further stage results in the total destruction of the septum, which is evidenced by a peculiar snuffling breathing and by pain.

All the adjacent structures are in rare cases involved, a septic condition results, and a fatal meningitis occurs.

OLFACTORY NERVES.

It is seldom that one comes across lesions of the olfactory bulbs. The process that causes them is the cause of more serious derangement, and so they are neglected.

The sense of smell is therefore recognized as deficient or absent in affections of the nose, and not of the olfactory nerves.

EAR.

The external ear may be the seat of primary and secondary manifestations of syphilis.

Chancre of the ear is a recognized, but rare, extra-genital chancre, and presents no special characteristics or

symptoms.

Secondary syphilides may give rise to partial deafness, buzzing in the ears, and vertigo.

Tertiary syphilitic ulceration and gummata may also be observed.

The chief lesion that demands attention is deafness. Syphilitic deafness has long been recognized, and was mentioned by the earlier syphilographers; it may be due to disease of the middle ear or auditory nerve.

Disease of the middle ear causes ABRUPTLY ~~at commencement~~, commencing and gradually progressing deafness. One side is usually affected before the other. There may be premonitory tinnitus and vertigo, but there ARE ~~is~~ no pain, no fever, and no local symptoms. The lesion is chronic, and bone conduction is diminished.

Deafness due to nervous lesions usually occurs in the first two years of the disease. Sometimes it is incomplete and insidious, but the typical syphilitic deafness is sudden and absolute. The lesion is in the internal ear, or somewhere along the course of the nerve; it is usually associated with other cerebral affections.

The onset, as stated above, is sudden and accompanied by pain; in some cases there is vertigo. One ear is usually affected; it is rare to find both involved. Bone conduction is lost in this condition, as in lesions of the middle ear.

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----------P R O G N O S I S.---------

GENERAL CONSIDERATIONS.

The general prognosis of syphilis is not always a favourable one, because all warnings and advice are too soon disregarded by the patient in not a few instances, and carelessness in carrying out the cure and indulgence in alcohol and tobacco tend to undo all that the most apposite and painstaking therapy of the physician may have effected. A case of syphilis, intelligently treated and properly supervised, usually terminates favourably at the termination of the medication; in early manhood, if the general health be otherwise good, the prognosis is favourable when the treatment is begun early and the same is prolonged. Having given these general indications, one must examine all the pros and cons in a given case.

History of the Case.

Before giving a prognosis in any case of syphilis, an accurate history of the illness is desirable; if an absolutely correct history cannot be obtained, one must be content with facts as they are presented. Many patients, it must be remembered, do not give truthful accounts - some unintentionally, and others with an ardent desire to conceal asmuch as possible. The prognosis must always be guarded, as syphilis occurs at any age and lasts a variable period.

Age and Vitality.

The younger and more robust the patient, ceteris paribus, the better the prognosis; in old and debilitated patients, whose recuperative powers are gone, the outlook is gloomy in the extreme.

Conditions of Infection.

The intensity of the present and future manifestations is proportionate to the intensity of the infection, the resistance of the patient, and the amount of treatment, and also inversely proportionate to the duration of the disease.

Constitution.

The constitution of the patient is a prognostic point of no inconsiderable importance. One can never assure a patient that his attack is going to be light. The interval between the infection and the appearance of the chancre, the time when induration is appreciable, the extent of the hardness, and all similar signs are worthless and meaningless, of no prognostic value, and no indication of the future condition. Spontaneous cure after the appearance of the chancre has been reported, but abortive syphilis must be regarded with suspicion, because the disease, however mild and easily releived, brings out every weakness; it encourages the development of tuberculosis and plays into the hands of every existing diathetic abnormality. In short, syphilis assumes the habits of its victims; its course depicts his weakness.

Intercurrent Diseases.

There is no gainsaying the fact that the presence of intercurrent diseases unfavourably influences the course of syphilis.

NEPHRITIS is one of the worst, as the patient is then unable to take mercury or potassium iodide with the usual impunity to the constitutional effects thereof.

PHTHISIS always renders the prognosis grave, and is very common in syphilitic patients. The number of phthisical patients, who have had syphilis, is truly astonishing and leads one to believe that the two affections are symbiotic. It has been suggested that phthisis, occurring in an individual who has had syphilis years before, runs a benign course, as the arterial lesions produce a pulmonary passive congestion that is inimical to the tubercle bacillus.

Another common disease in syphilitics is SCORBUTUS; numerous cases of such a combination occur every year in the Leeds Union Infirmary. The connection between the two is not thoroughly understood, but it suggests that syphilis renders the organism liable to extensive changes under slight privation.

ACUTE INFECTIOUS FEVERS, occurring during the course of

syphilis, do not cause much trouble, as the treatment is suspended only for a short time.

Idiosyncrasy.

Idiosyncrasy affects the prognosis. The patient may not be able to take mercury in any form, and so not be amenable to treatment. Such instances are rare.

Another form of idiosyncrasy concerns the patient's susceptibility to the disease. Two men may contract syphilis from the same woman, under exactly the same condition, and one may be much worse than the other, although the treatment in each case is identical in every respect.

Fatigue.

Laborious work, mental strain, and overwork predispose to arterial lesions and changes in the central nervous system. It is thus very important to ascertain the exact nature of the patient's employment.

The effects of laborious occupations are seen in the Leeds Union Infirmary in the number of arterial and nervous syphilitic lesions that occur. Indeed, the majority of cases admitted there are classed under this heading, including alcohol.

Climate.

The climate of the patient's country is a prognostic factor of some importance, but it can be made too much of. There seems to be little doubt that syphilis in Europeans resident in hot climates runs a more severe course than usual, but how much this is due to the debilitating influence of the climate is unknown. The primary and secondary stages are much more severe, but the tertiary manifestations are not so grave.

Age.

The age of the patient at the time of infection is most important. When children acquire the disease, the outlook is serious, as the growing tissues are a good medium for the development of the specific microorganism, and structural and developmental changes are apt to result. In young adults, who are otherwise healthy and can be subjected to efficient and prolonged treatment, the prognosis is excellent. Syphilis, in such a case, may be regarded as an accident; when, however, the patient is

middle-aged, syphilis is indeed a calamity. In patients past middle life, the disease runs a more rapid course, secondary rashes are severe, late eruptions and relapses are frequent, the tertiary stage is soon reached, and visceral and nervous lesions are apt to supervene. Old people, whose recuperative powers are gone, are liable to die - especially from the effects of the complications.

Sex.

There are some who hold that women are more severely affected than men, but the w r i t e r cannot agree with this statement. Sex seems to have little to do with the prognosis, except in so far that men are more easily dealt with than women.

Vices.

The habits of the patient are of no little importance. The patient who leads a simple life warrants a good prognosis, provided that other conditions are favourable. Excesses of any kind aggravate the disease and should be avoided.

TOBACCO and ALCOHOL are the enemies of the syphilitic, and there is great truth in the aphorism that "to preserve syphilis keep it in alcohol and tobacco".

Alcohol is the commonest and most active enemy of a syphilitic patient; by alcoholism is meant a chronic intoxication, but not necessarily drunkenness. Alcoholics, and those who indulge in venereal excesses and live under unhealthy condition; are liable to have severe syphilis. The effect of tobacco is immediate, local, and obvious, being evidenced by oral lesions. Tobacco is most active in the secondary stage, and alcohol in the tertiary.

Every influence to which the patient is subject may REACT upon the disease.

Injury.

The liability of the patient to injury must also receive careful consideration. Injury induces relapses of tertiary symptoms and may accelerate or cause the appearance of the tertiary phenomena of the disease.

Treatment.

The question of treatment is of paramount importance

in considering the prognosis. No treatment gives an absolute guarantee against relapse; but, if a patient comes under the influence of treatment early and perseveres therewith for two or three years, he may be told that, unless he aggravates the condition, no tertiary symptoms will appear. This statement is given with the reservation that the patient has no idiosyncrasy that will interfere with the administration of mercury. With good treatment, all signs of syphilis, in a subject otherwise healthy, disappear as soon as the system is brought under the influence of mercury; in less robust persons, relapses and successive manifestations are liable to occur.

Fournier (Marshall.- Syphilology) states that in 95 per cent. of cases efficient treatment - meaning at least a three years' course - prevents the appearance of tertiary lesions.

The tertiary manifestations of syphilis found in the Leeds Union Infirmary occur in patients who have never been treated for more than six weeks; most of the victims have been treated a week, some two weeks, others a month, and others not at all.

There is no doubt that untreated syphilis usually reaches the tertiary stage and is apt to cause parasyphilitic affections.

Marriage.

Treatment is of vast importance when the question of marriage of syphilitics is raised. Physicians are frequently asked by syphilitic patients what time should elapse before marriage is safe. This question is of vital importance, and the national physique and death-rate will depend upon the answer.

Jonathan Hutchinson (Syphilis) says that treatment for two years from the date of the chancre is sufficient for men, and is responsible for the general idea that that time is all that is necessary.

Fournier takes a much more serious view, advocates a minimum period of three years, and suggests a period of four; whereas others insist on five years of treatment.

In addition to this period, there should be a quiescent period of six months at least. It is a safe plan to demand a period of five years, and a prolonged and efficient course of

treatment. It must be remembered, however, that marriage is not synonymous with the procreation of children, and that, if the syphilitics bear no children, the danger is much lessened.

Insanity.

An important point that seems to have escaped attention is that a man who had had syphilis often affects his wife so much that she ultimately becomes insane. It is a common thing to find that a man has had no issue, and that his wife died in the asylum.

Numerous instance of this occurrence have been noted in the Leeds Union Infirmary, and they still further emphasize the importance attached to the question of marriage.

Morbific Type.

The type of the disease also influences the prognosis; according as the type is benign or malignant so is the prognosis.

Age-Expectation.

There is no reason to believe that syphilis, well and sufficiently treated, tends to shorten life to any appreciable extent; but insufficiently treated and untreated cases are most important and frequent cases of fatality.

The number of deaths attributable to syphilitic and parasyphilitic lesions is enormous; during the year 1908, the number of such deaths in the Leeds Union Infirmary was 108 and the percentage 22.04.

Attenuation of Infection.

It must be noted that syphilis is now a much milder disease than it was during the fifteenth, sixteenth, and seventeenth centuries, and that consequently the prognosis is much better as a whole.

PROGNOSIS OF STAGES.

PRIMARY STAGE.

The primary stage rarely causes death and, if it does, the fatal result is due to some complication. Extra-genital chancres usually result in a severe attack of syphilis, because their true nature is often unsuspected and treatment is not instituted until secondary symptoms of an unmistakeable

nature supervene. Simple chancres do not affect the prognosis, per se, but the occurrence of phagedena or gangrene is a grave sign.

SECONDARY STAGE.

Death is not common in the secondary stage, and usually results from some complication; but it may occur in old and debilitated subjects. This stage, when careful and judicious treatment has been adopted, is not serious.

Considerable glandular enlargement indicates a severe attack, due to the aasociated anaemia and debility, the same tending to delay restoration to perfect health.

The eruptions sometimes help one to form a prognosis. Pustular eruptions indicate a severe condition, and warrant a grave prognosis. Late secondary rashes indicate a severe form of syphilis, and are most common in alcoholics and those who have lived abroad. The abundance or scarcity of the rashes do not seem to give any clue as to the future course of the disease.

TERTIARY STAGE.

The more deep-seated, extensive, and ancient the visceral lesions are, the more fear should syphilis inspire; and this fear should be greater the more the organ affected is essential to life: in other words, the syphilitic affections of the heart, brain, and respiratory apparatus are those which compromize life, being capable in certain cases of causing death. The lesions of the liver are not without danger on account of the ascites, cachexia, etc., which accompany them.

Fatal results and permanent damage to health often occur from the affections of the heart, brain, etc. Practically speaking, the essential points in the prognosis of syphilis are - shall tertiary syphilitic lesions occur, and if they do, what danger to life and health will result? The treatment of the case in the early stages is therefore most important, but it must be remembered that treatment may fail in some cases. The meaning of this is that the prognosis as regards the development of tertiary lesions is not absolutely certain, in spite of treatment.

When such lesions have occurred, the prognosis must be

guided by the nature and extent of the lesions,and particularly by the organ affected. The lesions that are primarily syphilitic - gummata - must be distinguished from those which are secondarily syphilitic - softening of the brain, as the former are curable,whilst the latter are not.

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--------- D I A G N O S I S.--------

GENERAL CONSIDERATIONS.

The diagnosis of syphilis is an IMPORTANT subject from every point of view. The tenor of the patient's life is at stake, as is the health of the future generations, and the safety of the public is also concerned. It behoves the physician to use every possible means to diagnose the disease.

There is at present NO PATHOGNOMONIC SIGN by which syphilis can be diagnosed in all its stages.

In 1618, Jessen, a Hungarian physician, said that a white pellicle on the surface of blood drawn from a vein denoted syphilis, when it adhered to the rest of the mass like a tenacious skin. This was confirmed by others, but it was left to Astruc to deny and refute it.

Histology presents no typical sign; and it now remains for bacteriology to devise a diagnostic test. The value of the Wassermann reaction has already been discussed under bacteriology, and all that need be said at present is that it is not infallible. The demonstration of the spironema pallida is conclusive, but as yet it cannot be applied to all stages of syphilis.

On must take into account all the symptoms, examine them from every possible point of view, weigh and compare them, and base judgment on the totality thereof.

In some cases the diagnosis is almost self-evident, while in others it is well nigh impossible. It is impossible to diagnose syphilis during the period of primary incubation. The three stages can be diagnosed more or less perfectly in most cases.

If a patient thinks he has syphilis, he is apt to attribute every ache and pain to it, so the physician must be on his guard and discount the patient's story to a great extent.

The MEANS used to diagnose syphilis are numerous and valuable. The demonstration of the spironema pallida is conclusive evidence of syphilis, but its absence must not be taken as

proof that the patient is not syphilitic.This organism is difficult to find in some cases,and expert manipulations will be required for its detection.

Wassermann's serum test is useful in conjunction with other tests,but it cannot be relied upon in the absence of other signs.It may be negative in cases of syphilis,and positive when syphilis is absent.

Justus' blood-test is fairly reliable,but not absolutely so,as it may not be present in syphilis.It is based on the assumption that a stiff dose of mercury causes the percentage of haemoglobin to fall within twenty-four hours in an untreated or uncured syphilitic patient.The haemoglobin falls 10 to 20 per cent.

The inoculation of monkeys is more or less reliable,but impracticable on account of the insufficient supply of these animals and the expense of a vivisection license.

Man may be used for inoculation puposes,but the idea cannot be carried out.

The history of the patient is useful,but not always reliable.Too much attention can be paid to it,but it must not be passed over in contempt.

The presence of signs of old syphilitic lesions is invaluable in making a diagnosis.The whole body should be carefully examined and special attention paid to the legs,bones,glands, mouth,and genitals.Thin,rounded,depressed,pigmented scars, thickened tibiae,enlarged and indurated and indolent glands, destruction of the papillae on the tongue,and a cicatrix on the penis are of great assistance.

Perforation of the palate,flattening of the nose,and numerous abortions without any evident cause are useful points.

The presence of active lesions is positive evidence,if the lesions can be diagnosed.Mucous patches and indurated chancre are unequivocal signs.

In some cases it is necessary that recourse be had to the therapeutic test for diagnostic purposes.The idea is to treat the lesion as if it were syphilitic,and to give mercury or

iodides, or both, according to the nature of the lesion. As a rule, a three weeks' course of mild treatment is all that is required, but sometimes a more vigorous therapy is demanded, and injections of mercury may be resorted to.

Many errors are made in the diagnosis of syphilis. Some cases are diagnosed as syphilitic when the disease is absent, and vice versa. It is a grave mistake in either case, and too much care and pains cannot be taken in the recognition of the disease.

DIAGNOSIS OF STAGES.

PRIMARY STAGE.

The diagnosis of the primary stage is easy when, after a definite exposure and a latent period of three or four weeks, a sore develops on the genitals, which becomes indurated and associated with enlargement and induration of the adjacent inguinal glands; but it must be remembered that the sore is not always typical, and that it is not always developed on the genitals. In these atypical cases the diagnosis presents difficulties. Soft sores, which appear soon after exposure on the genitals and are associated with suppurating buboes, may contain the spironema pallida and ultimately become indurated. It is thus seen that, unless the spironema pallida can be demonstrated, it is impossible in some cases to be sure of an exact diagnosis. If the organism cannot be found, it is not possible to diagnose a sore as syphilitic until induration of its base and of the neighbouring lymphatic glands and secondary symptoms develop.

In the female, the primary sore is less typical, and every ulcer and parchment-like induration is suspicious, and more than suspicious, if the neighbouring glands enlarge.

Extra-genital chancres are often not diagnosed, or even suspected, until they fail to heal and cause induration and glandular enlargement.

There are points to consider and determine before a diagnosis can be made. The character of the sore and bubo, the history of the case, the test of time for secondary symptoms, and, above all, the demonstration of the spironema pallida are the foundations of the diagnosis.

The sore is usually single, small, uninflamed, indurated, and eroded; as a rule, it lasts for more than a week. The uniqueness of the chancre is not absolute, as there may be more than one observed. Absence of inflammation is noted only when there are no pyogenic microorganisms. The induration is more or less characteristic.

The glands are enlarged, firm, indurated, indolent and free from periadenitis, unless secondary infection results.

The history of exposure and of a period of incubation are very useful when taken in combination with the other phenomena.

When the spironema pallida can be demonstrated, the diagnosis is settled, but it must be remembered that is is not always easy, and that expert examination is required.

The development of typical secondary symptoms is diagnostic.

SECONDARY STAGE.

When all the characteristic symptoms are developed in a typical manner, the nature of the case is self-evident, but, as in the case of the chancre, many cases are atypical. The history may not give any information as to the presence of a sore previously, and there may be no trace of such a sore. The primary stage may pass unnoticed both in males and females, but more especially in the latter. In women, too, the cicatrix of a chancre, if there be such, is not always easy to find. Considering these facts, it is wise not to lay too much stress on the patient's statements.

The secondary symptoms may be so slight as to attract little or no attention, or they may simulate other affections so closely as to be mistaken for them. Many diseases may be thus simulated, and the keenest observation is required to effect a correct diagnosis.

As in the primary stage, there are certain features that must be considered. Due attention must be paid to each, and the diagnosis formulated on the totality of them.

The spironema pallida is present in the secondary stage and, if it can be found, there is no need to go further; but in many cases it cannot be demonstrated, and other evidence will accordingly be required.

The history of a primary sore is a help to the solution of the case, especially when such a sore occurred a few weeks after exposure to the infection. If a cicatrix is evident, there is still further help. The presence of characteristic adenitis is one of the links in the chain of positive evidence, as is the presence of an eruption which is neither painful nor pruriginous, of a coppery colour, and polymorphous.

Mucous patches are indisputable evidence and present the characteristics described elsewhere.

Alopecia, iritis, osteoscopic pains subject to nocturnal exacerbations, and cachexia are suggestive of syphilis, and when in conjunction with other positive or doubtful symptoms are almost pathognomonic.

Syphilitic fever is often difficult to diagnose, but, when care is exercised and concomitant symptoms are present, there should be little difficulty.

Whenever a doubtful lesion, which cannot be assigned to a definite cause, occurs syphilis should be borne in mind.

It may be necessary to try a test course of treatment, as described above, to enable a diagnosis to be made.

TERTIARY STAGE.

The diagnosis of tertiary syphilis, like that of the other two stages, is sometimes easy and sometimes extremely difficult. No one sign or symptom is sufficient; every sign and symptom present must be carefully weighed and considered from all possible standpoints. The clinical picture of the case, the character of the symptoms, and the grouping of the features must be relied upon to establish a diagnosis.

The lesions of tertiary syphilis present many characteristic features, while some of them are pathognomonic. Nodes on the superficial bones, accompanied by nocturnal exacerbations of pain, and serpiginous ulcers cannot be mistaken. The involvement of the third cranial nerve should at once put the physician on the track of syphilis. Hemiplegia, occurring in a comparatively young person without any definite cause, is suggestive of syphilis - more especially if the onset is gradual. Uniform enlargement of the testicle, without involvement of the epididymis, and stricture of the rectum in women, are probably

syphilitic in origin, as also is epilepsy occurring for the first time in adult life. Any partial paralysis, and any irregular nervous symptoms should lead one to consider syphilis. In addition to these, the prodromal symptoms of nervous syphilis, - which are pain, impairment of the health and mental condition, and fugitive nervous symptoms, - the irregular course and involvement of cerebral lesions, the age of the patient - which usually precludes all other causes of nervous lesions - and the examination of the cerebro-spinal fluid for lymphocytosis must be taken into consideration.

The history of the case is an important factor. The patient must be thoroughly and tactfully questioned as to his past life; due stress must be laid upon the possibility of exposure to syphilis - all denials being received with some suspicion. The body must then be carefully and thoroughly examined for any scar that might have resulted from a chancre. The presence of a scar in this region is fairly reliable evidence of syphilis, but its absence by no means excludes the disease. The groins should next be examined for cicatrices. Syphilitic buboes are so often inflammatory, as the result of pyogenic microorganisms, that cicatrices in the groins are very common. These remarks apply more particularly to the cases seen in workhouse infirmaries.

The rest of the body is next searched for the typical cicatrices of syphilis. The tibiae should always be examined, as thickening results in most cases.

If no evidence of any value can be found, recourse must be made to test treatment or serum reaction. The course of test treatment is the more reliable, as the serum reaction is not yet perfect, although useful.

DIFFERENTIAL DIAGNOSIS.

Diagnosis of Diseases.

Syphilis simulates almost every disease in its course. The differential diagnosis of every lesion comprises the whole subject of medicine nearly, and only the more important points will be considered here.

A few of the affections that may be simulated are CANCER, TUBERCULOSIS, SPECIFIC FEVER, CHANCROID, VINCENT'S ANGINA, ANY

NERVOUS DISEASE, and ANY SKIN DISEASE.

Syphilis, as a whole, has to be diagnosed from yaws, smallpox, influenza, typhoid fever, scarlatina, and measles.

In YAWS, the spironema pallida is absent, as are alopecia, internal lesions, and stages. It is never inherited, and it confers no immunity against syphilis. The skin alone is affected and the eruption is not polymorphous. The disease is confined to the tropics, whereas syphilis is not.

When fever is present along with a vesicular or pustular eruption, it is difficult to distinguish between SMALLPOX and syphilis. In smallpox the course is more rapid, the headache is more intense and not subject to nocturnal exacerbations, and the spironema pallida cannot be found. The history of the case may help in clearing up the diagnosis.

TYPHOID FEVER may be easily mistaken for syphilis at first, when fever and a scanty and discrete and papular eruption is present upon the abdomen. The demonstration of the typhoid bacillus, the Widal reaction, leucopenia, and the history should settle any difficulty.

Sometimes cases of syphilis are diagnosed as INFLUENZA, when the latter is epidemic and when headache and backache and a rise of temperature are the symptoms. A few days usually suffice to correct the diagnosis. The diagnostic features of syphilis are absent.

MEASLES and SCARLATINA are sometimes closely simulated by syphilis, when the roseola assumes a morbilliform OR SCARLATINIFORM type and also affects the throat and eyes. They are more active and rapid, present no other similarities with syphilis, and do not present the spironema pallida. The history is also important.

MALARIA may be simulated by some cases of syphilis, but the demonstration of the malarial parasite soon distinguishes the two affections.

Diagnosis of Lesions.

CHANCRE.

The primary lesion of syphilis requires to be diagnosed from numerous conditions, but the discovery of the spironema pallida has lessened the difficulties very much, and where a

diagnosis was formerly hypothetical it is now positive.

Every one meets with cases of primary syphilis that have to be diagnosed from other lesions. The situation of the chancre varies, and so also do the diseases to be differentiated from it. In general, the chancre has to be distinguished from chancroid herpes, scabies, epithelioma, gumma, furuncle, ulcers due to traumatism and tubercle, eczema, and Vincent's angina.

SOFT CHANCRE has not an incubation period like that of hard chancre, and it is accompanied by an inflammatory bubo. It is multiple, has a purulent discharge, and is painful. The adenitis is not indolent or indurated, and scrapings do not show the spironema pallida. For other points see Mixed Sore.

HERPES consists of a group of vesicles to start with, and has no incubation period. It is of shortter duration, and there is no specific microorganism. Burning and itching are marked features, and there is no induration or adenitis of a syphilitic character. It must be remembered, however, that herpes may coexist with a hard chancre.

SCABIES on the penis, especially the glans, must be diagnosed from chancre in some cases; the w r i t e r came across such a case a few days ago. In scabies there is no incubation period and no adenitis. Itching is present, and other parts of the body are similarly affected. There is usually a history of others being similarly affected. The spironema pallida cannot be demonstrated. Very often scabies and hard chancre coexist.

EPITHELIOMA may simulate chancre in any situation. The absence of the spironema pallida, the examination of the tissue by means of the microscope, the lateness and character of the adenitis, and the fact that no secondaries develop settle the diagnosis. The course of the lesion, and the fact that it bleeds easily, are important; while the age of the patient is not diagnostic, as hard chancre may occur at any time of life.

A GUMMA of the penis, especially in the site of the old chancre, is not rarely mistaken for a chancre, and may account for some cases of reinfection. The fact that there is no incubation period, no adenitis, and no spironema pallida should help one to diagnose correctly.

A FURUNCLE of the labia may simulate a chancre in some cases, and is diagnosed by the pain, the absence of the spironema pallida and of the indurated glands, and the course of the affection.

VINCENT'S ANGINA sometimes appears like a chancre, but it has more tenderness and is due to a different organism.

Chancre of the tongue is not unlike a lingual TUBERCULOUS ULCER, and is diagnosed from it by the character of the adenitis, the sensitiveness, the microorganism, and the rarity of the latter.

Mammary chancre has to be distinguished from ECZEMA, PAGET'S DISEASE, EPITHELIOMA, and FISSURED NIPPLE by the demonstration of the spironema pallida, the character of the adenitis, and the microscopical examination of the tissue.

OTHER CUTANEOUS LESIONS.

Syphilitic alopecia is diagnosed from ALOPECIA AREATA by the patches being smaller, more numerous, more irregular, and by the skin being free from atrophy.

Roseola may be confused with measles, scarlet fever, simple roseola, drug eruptions, and rheumatic erythema. The fever, the acute course, the history, and general symptoms distinguish it from MEASLES and SCARLET FEVER. SIMPLE ROSEOLA is "seasonal", usually attacks the face, itches, and often has febrile symptoms. DRUG ERUPTIONS are more sudden in onset, more rapid in their course, and are cured by the cessation of the drug concerned. RHEUMATIC ERYTHEMA is associated with rheumatism, and is present in the neighbourhood of joints. The marbling due to COLD can scarcely be mistaken for roseola.

Pigmentary syphilide has no real leucoderma, and does not affect the hairs; it has the characteristic reticulum. These characters distinguish it from VITILIGO. ADDISON'S DISEASE affects the mucous membranes, while the pigmentary syphilide does not.

The papular syphilide, by its scantiness and situation, sometimes simulates the rose spots of TYPHOID FEVER, and it has to be distinguished by the Widal reaction, the absence of leucopenia, and the characteristics of the syphilides.

Syphilitic psoriasis differs from ordinary PSORIASIS by the scales being thinner and less adherent, the colour being darker, the absence of bleeding when the scales are removed, and the fact that it often affects the palms and soles.

LICHEN PLANUS is diagnosed from the lichenoid syphilide by the presence of itching, the papules being less circular, the collateral evidence, and the test of treatment.

Herpetiform syphilide has not the colour and rapid development of ordinary HERPES, and is irregularly disseminated.

Acneform syphilide is less polymorphous, of a darker colour, less extensive, more acute, and more transitory than ACNE VULGARIS, and it has no comedones.

VARIOLA is diagnosed from varioloid syphilide by the sudden onset of fever with headache and backache, the course of the eruption, and the absence of other signs of syphilis. The careful practitioner will not be guilty of sending a case of syphilis to the smallpox hospital.

Syphilitic echthyma can only be diagnosed from ordinary ECHTHYMA by the absence of the signs and symptoms of inflammation.

Palmar syphilides must be carefully distinguished from palmar ECZEMA. The latter is nearly always bilateral, while the syphilitic condition is usually unilateral, has a soft base, is not limited to the palms, generally affects the whole palm, and is not cured by antisyphilitic treatment.

Syphilitic impetigo has scabs of a yellower colour, and is more confluent and less indolent than IMPETIGO CONTAGIOSA.

The tertiary syphilides may be mistaken for LUPUS and TUBERCULOSIS. Lupus runs a more chronic course, is grouped in an irregular manner, has a lighter colour, and has the characteristic apple-jelly nodules at its margin. Other signs of tubercle must be looked for, and the therapeutic test applied if necessary. The histological, bacteriological, and inoculation tests cannot be relied upon in every case, but, when typical, are diagnostic.

Tuberculous ulceration has a thin, soft border, a light areola, and an irregular, superficial, raw-looking base. The

tests for lupus given above must also be applied.

The gummatous ulcer has the following characteristics, which a VARICOSE ULCER has not: It usually affects the upper part of the leg, is more or less circular in form, is often multiple, has sharp and deep edges, and is usually coexistent with other syphilitic lesions.

Gummata differ from BOILS, CARBUNCLES, etc., in their slow and painless evolution and in the absence of inflammatory symptoms.

CANCER differs from a gumma in the presence of pain and the involvement of the lymphatic glands.

Syphilis of the external genitals has to be diagnosed from various other lesions.

SCABIES has the characteristic nocturnal itching as its most important feature, and is not of a coppery colour. The acarus may be found on examination, and thus end the difficulty.

HERPES is painful and pruriginous, while the syphilide is not.

PSORIASIS and LICHEN PLANUS have the distinguishing characteristics already described.

SOFT CHANCRE has a punched-out, circular appearance, and discharges pus containing Ducrey's bacillus.

ORAL LESIONS.

The most important lesion to be differentiated is the ulceration due to MERCURIAL STOMATITIS. The ulcer of mercury rarely occurs upon the fauces, upon the dorsum of the tongue, or at the angle of the lips where syphilitic ulceration is common. It usually occurs behind the last molar tooth. The presence of other signs of mercurial stomatitis -salivation, foetid breath, red and spongy gums, as well as the fact that improvement occurs when mercury is left off, settles the diagnosis.

DIPHTHERIA is diagnosed by the presence of the diphtheria bacillus, the absence of other signs of syphilis, and the greater severity of the constitutional disturbance.

APHTHOUS EROSIONS are smaller and more painful than those due to syphilis; but, in some cases, the differential diagnosis

is impossible.

HERPES is distinguished by the frequency of a group of lesions, the polycyclic and microcyclic character of the eruption, and the smallness of each individual lesion. It also has a collarette of epithelial débris, which is not found in syphilis, and does not react to mercury.

VINCENT'S ANGINA is due to a different microorganism, is cured by the application of tincture of iodine, and does not react to mercury or the iodides.

Tertiary syphilitic lesions of the tongue must be diagnosed from epithelioma, primary chancre, and tuberculous ulceration.

EPITHELIOMA occurs almost exclusively in men over forty-five years of age; but this is not diagnostic, as syphilitic lingual lesions may occur at any age. It is usually single, and syphilitic lesions may be multiple. The glands are enlarged and the pain severe in cancer, while both are wanting in syphilis. Epithelioma is rare on the dorsum, where syphilis is most common; it bleeds easily, and is a fungating ulcer with an extremely hard base. Sometimes a histological examination is required to distinguish the one from the other. Syphilitic treatment does not cure an epithelioma.

The PRIMARY CHANCRE is accompanied by characteristic adenitis, and presents the spironema pallida, while tertiary syphilis does not.

TUBERCULOUS ULCERATION is more painful and superficial than the gummatous ulcer, and is less excavated and more ragged. The tubercle bacillus may be found. The tuberculous ulcer may occur on the under surface of the tongue, where gummata never occur.

PALATE.

Gummatous ulceration may simulate a TUBERCULOUS ULCER, but the latter is more painful, never perforates the palate, has glandular enlargement with it, is usually associated with other tuberculous lesions, and may present the tubercle bacillus on examination. The therapeutic and inoculation tests confirm the diagnosis, if the above characteristics do not suffice.

TONSIL.

CANCER of the tonsil is harder, more painful, less deep, and of slower evolution than gumma.

GUMMATA and CHANCRES may be distinguished by the tests given under the differential diagnosis of chancre.

NOSE.

LUPUS is the only condition that requires differentiation. It usually exists with other tuberculous lesions, is of slower evolution, may have the characteristic nodules at its borders, and the ulceration is more superficial. MALIGNANT DISEASE has no crusts, and does not react to antisyphilitic treatment.

NASO-PHARYNX.

LUPUS must be distinguished from syphilis by the same means as in the case of the nose.

LARYNX.

Tertiary syphilis of the larynx simulates both tubercle and cancer.

TUBERCLE is diagnosed from it by the multiplicity of the lesions, its superficiality, the associated tuberculous lesions, the presence of the tubercle bacillus, the presence of pain, and the failure of antisyphilitic treatment. Tubercle is usually situated on the vocal cords, while syphilis most frequently seen attacking the epiglottis, and is moist and pink in contradistinction to the dry, dark-red syphilitic lesion. Syphilis is slower in evolution, as a rule, and causes fewer symptoms. The resulting ulceration is deeper and more destructive in syphilis, while the surrounding tissue is not pale, as in tubercle. Test treatment is a pathognomonic criterion.

CANCER is more painful, the breath is more foetid, the course is more rapid, and haemorrhage is more frequent in cancer than in syphilis. Microscopical examination confirms the diagnosis.

LUNGS.

Syphilis of the lungs is not often diagnosed; it is mistaken for PHTHISIS in nearly every instance, but there are certain distinguishing features which ought to be recognized. The tubercle bacillus is found in the sputum in phthisis and not in syphilis, unless the two affections coexist. If one cannot find the tubercle bacillus after repeated and careful examinations, and if the patient is apparently tuberculous, syphilis should be suspected. Diarrhoea, night-sweats, and hectic fever are present in pulmonary tuberculosis and absent in pulmonary syphilis. The whole question of syphilis of the lungs requires elucidation, and it is only by careful clinical diagnosis that one will learn anything about it.

LIVER.

Cancer and cirrhosis of the liver often include syphilis of that organ, as the necessary care is not taken to distinguish syphilis and other diseases thereof.

Gummata are of slower growth than MALIGNANT TUMOURS, and they cause jaundice and ascites less frequently.

CIRRHOSIS of the liver is more chronic than syphilis, and does not react to the therapeutic test. The presence of other syphilitic lesions would help to distinguish between the two, as would the history of the case and the presence of syphilitic scars.

OSSEOUS LESIONS.

Syphilis of bone may be mistaken for tuberculosis, periostitis, osteomyelitis, callus, and new growth.

The lesions of TUBERCULOSIS are in the epiphysis rather than in the shafts of bones, and the pain of osseous tubercle is not subject to severe nocturnal exacerbations. The pain in syphilis is not relieved by traction, while that in tubercle is ameliorated thereby.

SUPPURATIVE BONE LESIONS differ from syphilis in the degree of fever and leucocytosis, and in the freedom from nocturnal exacerbations of pain.

The history of the case and X-ray examination are usually

sufficient to distinguish CALLUS and NEOPLASM.

ARTICULAR LESIONS.

The most important lesion to be distinguished from syphilis is TUBERCULOSIS. The latter is more painful, more rapid in evolution, and sooner destructive, as well as productive of a general thickening of the synovial membrane instead of localized nodules as occur in syphilis. The presence of other lesions, as the scars of syphilis, the effect of antisyphilitic treatment, and X-ray examination, soon effect the differentiation.

RHEUMATOID ARTHRITIS has the "lipping" of the edges of the bone, which is not found in syphilis; it is more chronic, causes grating, and results in greater deformity than syphilis. These points, in addition to the history and X-ray examination, settle the diagnostic difficulty.

Syphilitic disease of the spine is diagnosed from TUBERCULOUS SPONDYLITIS by the history, the presence of other signs of syphilis, and the effect of antisyphilitic treatment.

TESTICLE.

Syphilis of the testicle must be distinguished from TUBERCULOSIS and CANCER. Tuberculosis begins in the epididymis, while syphilis and cancer commence in the testicle itself. Cancer evolves more rapidly than the other two. Syphilis does not involve the scrotum; cancer and tubercle ultimately do so. The pain is more severe in cancer and tubercle than in syphilis, and tenderness is not a feature of syphilis or cancer, while it is of tubercle. The spermatic cord is seldom affected in syphilis, and not uncommonly in cancer and tubercle. The syphilitic testicle is harder and more uniform than in the other two. Cancer rarely affects both testicles, syphilis often does. The glands are involved in cancer, but usually free in syphilis and tubercle. Suppuration and fistula are common in tubercle and rare in syphilis, while a fungating testicle occurs in cancer.

TRAUMATIC ORCHITIS is rapid in onset, preceded by injury, and accompanied by severe pain and swelling. GONORRHOEAL ORCHITIS is preceded by gonorrhoea and commences with changes

in the cord and epididymis. These points should be sufficient to distinguish such affections from syphilis.

BREAST.

Syphilitic affections of the mammary gland are often difficult to distinguish from cancer and adenoma, and a course of test treatment is sometimes the only available method.

CANCER of the breast is more painful than syphilis; it causes glandular enlargement, while syphilis does not, and implicates the skin. When a gummatous ulcer results, the diagnosis rests on the absence of adenitis and fungation.

ADENOMA of the breast is more movable than syphilis, but sometimes it cannot be distinguished from syphilis.

INTESTINES.

Syphilis of the stomach and intestines must be diagnosed from TUBERCLE, CANCER, and GASTRIC ULCER. The associated symptoms and the therapeutic test are all than can be relied upon at present. The age of the patient and his general health are no criteria. Syphilis of the alimentary tract requires more attention, as our present knowledge of the subject is by no means extensive.

CIRCULATORY SYSTEM.

No distinct differential diagnosis can be given as syphilis may cause any lesion and can only be diagnosed by the associated symptoms.

IRITIS.

Syphilis must be distinguished from RHEUMATIC IRITIS, which is always associated with rheumatism, is more rapid in its course, has no condylomata, and is never punctate.

EPILEPSY.

Essential epilepsy differs from that due to syphilis in that it has an initial cry, is usually accompanied by loss of consciousness, occurs in young people, and is not accompanied by other central lesions, so soon after its onset, as syphilis.

HEMIPLEGIA.

Syphilitic hemiplegia is distinguished from that due to

other causes by the following features: It usually occurs in younger people, though it may occur at any age. Prodromal symptoms, such as headache and transient paralyses, are usually present. The onset is more or less gradual, there is no loss of consciousness, and the course is frequently slow, progressive, and incomplete.

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-------- T R E A T M E N T.---------

P R O L O G U E.

The treatment of syphilis is a vast and important subject, and it requires to be considered from several points of view. It is divided into two broad classes - the preventive and the curative. Preventive may be subdivided into the prevention of syphilis, or prophylaxis, and the prevention of symptoms; while the curative indicates only the cure of the disease and the cure of symptoms. The prophylaxis of syphilis is a medical and a public-health question and includes the protection of the future, as well as the present, generation. The prevention of symptoms, and their cure when present, are parts of the general curative treatment and differ in no detail. Curative treatment is subdivided into the cure of hereditary and of acquired syphilis, and includes abortive treatment. The methods of curing syphilis, by adjuvant treatment, by sera, and by drugs, must be fully discussed.

The cure of syphilis is a great means of limiting and suppressing it, as it prevents the person suffering from it from becoming a source of fresh infection. On this account, the poor should have the same advantages as the rich, and the provision of means of treatment cannot be too free. At the present time, the poorer classes are not treated in the way they should be; when they come to dispensaries or union infirmaries, they are too often treated with contempt and ridicule. Until they are regarded as sources of the greatest scourge of modern times, and as human beings, so long will syphilis pursue its destructive course.

Fournier has remarked somewhere that syphilis is, of all diseases, the one which can be best, most easily, and most certainly cured, because mercury is the specific. This is true, as there is no class of disease in which the beneficient results of judicious and early treatment of the pernicious effects of

injudicious and late treatment are so marked as in syphilis.

Mercury is the remedy for syphilis, and it is to syphilis what water is to fire. In the hands of the physician who uses it rightly, knows when to apply it correctly, and understands in what form to employ it, it is the cure.

Syphilis is curable, and mercury and hygiene and time will do it.

Each patient must be treated on a separate footing, but all should be informed of the danger of insufficient treatment, the precautions to be taken, and the risks of infecting others. The importance of doing this cannot be overestimated, and the fact should be duly impressed upon every student of medicine.

P R O P H Y L A X I S.

HISTORICAL.

The prophylaxis of syphilis has long been a vexed question. That it is essential for the well-being of the public has been recognized for centuries, but it is only within comparatively recent years that serious measures have been adopted to combat the ravages of the disease.

Many attempts at prophylaxis were made during the latter part of the fifteenth century, and in Scotland a law, passed in 1497, enacted that persons afflicted with the "grand gor" must leave Edinburgh, on pain of being marked on the cheek with a red-hot iron, so that they might be recognized in future. A similar enactment was made with respect to Aberdeen about the same time.

Other countries passed resolutions to the same effect; but they were all to no purpose, and syphilis still reigns.

Nearly three centuries passed before sanitary legislation was applied to the disease; in 1714, the police of Paris instituted sanitary visitation of prostitutes. This was the first attempt to deal with the problem from a public-health standpoint, and is, in fact, the basis of the present-day regulation of prostitution.

During the last decade of so, national and international congresses for the suppression of venereal diseases have been

held, journals have been published, and many books written on the subject.

PROSTITUTION.

There is no doubt that the most serious attempt at the suppression of venereal diseases ever made is now being instituted. Medical men, clergymen, social reformers, and all others interested in mankind are banded together with the intention of suppressing prostitution, - the principal source of venereal diseases. The campaign in question is a matter of public health and social hygiene, just as it is in the case of tuberculosis and alcoholism, and it is of interest to all who have the well-being of their fellow creatures at heart. The dangers arising from venereal diseases, especially syphilis, should be thoroughly understood by every one, and the general public should be informed by means of literature and lectures.

The only legitimate means of preventing syphilis are continence and self-control; but physicians, as practical men, must look at human nature as it actually exists, and recognize that some men find it impossible to control their passions and that others do not care to do so. This means that prostitution must exist until man is sufficiently educated to understand its dangers. If the person affected were the only victim, one would not harp so much upon the question; but wives, mothers, and children - the backbone of the nation - being also involved, the point is one of great importance.

The campaign against veneral diseases must be conducted so as to attack every possible means of propagation. Prostitution is the most important source of propagation, and it is one that demands the fullest consideration.

By prostitution is meant the use of the body by any man, without distinction, for payment.

Those who indulge in prostitution, the prostitutes, do so from various causes. Some are born, but the majority are made. The born prostitute is morally insane, and relatively uncommon. Those who become prostitutes, as the result of various agencies, are in the majority. Absolute poverty, the lack of the necessaries of life, the existing laws of society, low wages, and one-

roomed houses are responsible for the creation of many prostitutes.Poverty and want are not so fruitful sources of prostitutes as low wages and one-roomed houses.Those who earn little, and have to live decently,are forced to augment their income; and what is easier and more productive than prostitution? The abolition of sweating and the compulsory payment of a living wage would tend to diminish the number of prostitutes.Those who knowingly underpay their workers are more to blame for prostitution than any one else,and they should be severely dealt with forthwith on their discovery.The one-roomed house is responsible for much.When males and females live in the same room,what must result? The women are trained as prostitutes and, when children are present,the licentiousness is not diminished. The children see what takes place,look upon it as right,and increase the number of the erring sisterhood when older.Glasgow is especially to blame,and the sooner the latter is attended to the better.The laws of Society are unjust.The sinner,when found out,is despised,rejected,and not infrequently forced into prostitution.

The abolition of prostitution would practically put an end to venereal diseases;it is the aim of all the campaigns for the suppression of syphilis,and can only be obtained by international measures.The subject of prostitution has received much attention,and almost every city has a book on the subject. The prevalence of prostitution in Glasgow was remarked upon by Rev.R.Wardlow,in 1843,in one of his books.The fight against it is not a medical matter,but concerns each individual person. It is the principal focus of venereal disease;and,when it is remembered that it is not essential,the possibility of victory is ever present.No one can say a word in favour of prostitution; its evils are innumerable,and its abolition is essential.

Many attempts have been made to grapple with the question. Registration,medical inspection,and compulsory treatment,if necessary,have been advocated and tried without success.Syphilis goes on as much as ever in spite of all these regulation.Prostition has never been suppressed by legal measures,and it never will be.Abolition is the only hope of salvation from syphilis,

and the first step towards abolition is free prostitution. Let every prostitute be untrammelled and free from police supervision. Experience has shown that slight control is exercised over the spread of syphilis in countries where systematic regulation of prostitution is attempted by the State.

Licensed brothels and controlled streets, such as exist on the Continent, are a public calamity. They bring the district in which they are situated into disrepute, they favour traffic in girls, and they increase the amount of venereal disease. It has been proved that prostitutes in such places suffer from venereal diseases more frequently than do free prostitutes.

Medical inspection of men and women, who use licensed houses, has also proved ineffective.

The true hope is freedom. Let prostitution be free and unmolested. Humanize the prostitutes, and rescure them if possible. Let women understand the sex question, let them consider prostitution, and let them suggest methods of suppression. Educate the young, so that they shall know the dangers and evils of prostitution.

PERSONAL PROPHYLAXIS.

Since prostitution exists at present and is the means of spreading veneral disease, the prophylaxis of syphilis should be known. Personal prophylaxis is essential under the present condition.

CLEANLINESS is the essential point in personal prophylaxis; cleanliness of the body and clothes can prevent the spread of syphilis to some extent. Every act of uncleanliness is a potential transmittor of the disease.

CIRCUMCISION is a prophylactic of no mean value. It is found that Jews are less affected than Christians when the conditions are equal. Eminent authorities, such as Jonathan Hutchinson, recommend it. At any rate, if circumcision is not possible, cleanliness is and should be attended to.

After every suspicious intercourse, the genitals should be washed or douched with ANTISEPTIC LOTIONS. These act mechanically in removing any microorganism which have merely been deposited; the same applies to MICTURITION.

Every man who indulges in sexual intercourse should carefully EXAMINE THE WOMAN for any discharge, suspcious spots and scars, and should always be under self-control lest he neglect any precautions.

In addition to the above, there are certain preventive measures that can be observed.

The CONDOM is the oldest and most trustworthy preventive of syphilis and consists of a membrane, usually of guttapercha, which covers the penis during sexual intercourse. When of good quality, when properly applied, and when carefuly removed, it is the best and most certain protective measure. It protects the man from the woman and the woman from the man.

Various drugs, in the form of OINTMENTS and LOTIONS, are useful. Inunction is the best method. The penis may be anointed before and after connection with an antiseptic ointment, but the protection arising therefrom is only relative. It is, however, better than nothing.

Metchnikoff and Roux, by repeated experiments on macaques and chimpanzees, showed that it was possible to destroy the syphilitic bacillus by applying a strong antiseptic ointment to the point of inoculation within one hour and a half from the time of inoculation. The used a 30 per cent. calomel ointment, and and ointment of salicyl-arseniate of mercury. When the same experiments were conducted on monkeys with the same virus, a chancre developed when the ointment was not used. Further, a medical student submitted himself to the same process, and in this case also the ointment was efficient.

Neisser reports that he has tried the same experiments, but with practically no success.

Metchnikoff recommends the use of a 30 per cent. calomel ointment for five minutes after a suspicious connection, and he goes the length of affirming that it is specific.

Lotions and washes of an antiseptic nature are much inferior to the calomel ointment.

The existence and relative value of such protective measures should be known, in spite of the fact that such things are tabooed. Many cases of syphilis would be prevented if these

measures were more frequently employed. They can be used by every one, and as long as prostitution exists should be extensively had recourse to. It is useless to ignore tham, as many ultra pious people do; they exist, are useful, and public health demands them.

The prophylactic measures enumerated above refer to the prevention of syphilis through sexual intercourse; but it must be remembered that there are OTHER WAYS of acquiring syphilis, against which proper prophylactic precautions can be taken.

A most important point is the fact that a SYPHILITIC CHILD or a SYPHILITIC WET-NURSE may propagate the disease. It is thus seen that a double supervision is necessary.

When choosing a WET-NURSE for a healthy child, great care must be exercised. She must be carefully and thoroughly examined for present or past evidences of syphilis, and it is also advisable to enquire as to the condition of any children she has suckled. It has been suggested that every wet-nurse should procure a certificate of good health signed by a qualified medical practitioner and, failing this, should be debarred from nursing so long as it is possible for her to be incubating syphilis. A point that cannot be overlooked is the fact that a wet-nurse may be incubating that affection, received from one child, and passed on to another as a healthy nurse. To avoid this, a wet-nurse should allow two months to intervene between each case.

A SYPHILITIC INFANT is also a danger to the community; it may infect many healthy people. Every such infant should be suckled by its mother or, if this is impossible, should be bottled-fed. A syphilitic wet-nurse should be allowed to suckle the child, as she can do this with impunity.

In 1837, Colles, of Dublin, pointed out that a mother could suckle her syphilitic child with impunity, on account of the fact that she was rendered immune. The mother need not necessarily show any signs of syphilis. This law is more or less absolute, and exceptions to it are to be doubted. It may be noted that Baumés, of Paris, discovered the same law shortly after Colles.

At a later date, Profeta formulated a law which is the converse of that of Colles. He said that the apparently healthy

child of a syphilitic mother could be suckled by its mother, or by a syphilitic wet-nurse, with impunity; but this law is full of exceptions, so that it is better to disregard it. All evidence is in favour of Colles' and in condemnation of Profeta's law.

To avoid any risk, a syphilitic child sjould be nursed by its mother or by a syphilitic wet-nurse; and an apparently healthy child with syphilitic parents should not be given to a wet-nurse till it is four months old, before which time it must be bottle-fed.

A question of vital importance in the prophylaxis of syphilis is: HOW LONG A TIME SHOULD ELAPSE BEFORE A SYPHILITIC CAN SAFELY MARRY? The answer to such a question is national in its importance, as well as personal. The point is discussed under the treatment of hereditary syphilis; but it may be stated here that no one with active symptoms should be allowed to marry under any circumstanees, and that a course of treatment lasting for three years is essential in persons who have had syphilis, but present no active lesions.

Every syphilitic should be made aware of the fact that he is a SOURCE OF DANGER TO THE COMMUNITY, and he ought to be advised to avoid contact with any one for two years, even though no symptoms are present. All cups, spoons, pipes, and other things placed in the mouth of the tainted individual should be thoroughly washed prior to being used by others. His articles of toilet must be reserved for himself exclusively, and he must not kiss or sleep with any one. Such precuations are absolutely necessary.

The next point to be considered concerns the MEASURES TO BE TAKEN BY NURSES, PHYSICIANS, DENTISTS, etc., who have to deal with syphilitics. No operation should be performed on a syphilitic, unless rubber gloves are worn; no one should examine a syphilitic woman without a finger-stall. After each contact with such a person, antiseptic washes should be used, and during any examination mercurial ointment or vaseline should be liberally used.

Such is the prophylactic treatment of syphilis. The maxim,

prevention is better than cure, could not be better exemplified. The gravity of the disease has to be thoroughly realized before the urgent necessity for elaborate precautions against it can be appreciated. All honour to those who strive to disseminate the knowledge of the disastrous results of syphilis; many a buffeting will they get, but truth will triumph, and sooner or later their reward will come! Syphilis must be checked, and doubtless the advances in serum treatment will ere long provide a useful weapon for the extermination of this scourge of humanity.

HEREDITARY SYPHILIS.

The treatment of hereditary syphilis is a matter of vital importance to the child, as the life of the latter depends upon it; in adults, no such issue is so soon at stake, and one is justified in using any drug that seems to be indicated. But, in the case of the child, only drugs of known efficacy should be used. Syphilis is such a destroyer of actual and potential child life that every possible means should be employed to overcome it. The number of deaths, abortions, miscarriages, and barren marriages due to syphilis is appalling; and the task of counteracting them is by no means a trivial one. The duty of every practitioner is apparent: he must use prophylactic methods of treatment in addition to treating the victim of the disease. The treatment of hereditary syphilis thus resolves itself into three divisions - prophylactic treatment, the treatment of hereditary syphilis in the infant, and the treatment of late hereditary syphilis.

It must be remembered that the treatment of hereditary and congenital syphilis is the same in all essentials; and the only differences are connected with the age of the patient, the state of the tissues, and the issue at stake.

The prophylactic treatment concerns the PARENTS, and is of great importance. The nation's well-being is at stake. As stated above, no syphilitic persons should be allowed to marry, unless he has undergone a prolonged and efficient course of treatment and been free from active symptoms for at least a year. The best

method would be to prevent the marriage of any person who has had syphilis. The presence of active symptoms is a certain prohibition of the proposed union. If it happens that syphilitics have married without undergoing the necessary preliminaries, they should be advised to have no issue until the treatment and unsafe period have been gone through. The necessary precautions are more easily observed in the upper classes of society; but, in the case of the poorer classes of the community, all warnings are disregarded, and any misfortunes arising from the marriage are laid at the physician's door.

The question of MARRIAGE is, in fact, not a medical one; but the terrible effects of syphilis on the offspring of tainted parents makes it the duty of every physician, as the guardian of the nation's health, to take it up.

The next point to be considered is the TREATMENT OF THE PREGNANT WOMAN. At one time the pregnant woman was untreated, as mercury was thought to be an abortifacient. This fallacy is now disproved, and the opinion of the profession is that mercury should be given in such cases. The result justifies the means, as the children born are much healthier and less liable to die than would be the case if treatment of the kind were not instituted. The mother is best treated by the administration of hydrargyrum cum creta, in small doses of half a grain; small doses are given because the mercury is intended for the child, and not for the mother. This treatment should continue during the whole period of pregnancy; some, however, prefer to give mercury intermittently - so many days' treatment and so many days' rest. The former method is as good, if not better than, the latter and is to be recommended.

In addition to the treatment of the pregnant mother, the FATHER should undergo medication. To be of any use, he should be put on gray powder before he has impregnated the mother.

The curative treatment consists of the administration of MERCURY in one form or another, and should be commenced as soon as any symptoms appear. It is customary in some places to give the drug before any symptoms are present, in the hope that they may never present themselves; but there does not seem to be any

advantage, as mercury does not inhibit the disease. It acts more quickly in children than in adults, and the child reacts better than the man.

Various preparations and methods of administering mercury are in vogue; but gray powder and protoiodide of mercury are the most efficient preparations to use, and oral administration and inunction the best methods of exhibition.

Oral Administration.

Calomel, gray powder, and protoiodide of mercury are most extensively employed.

Gray powder is the favourite remedy in this country; it is mild, efficient, and easily taken, as well as less liable to irritate the gastro-intestinal mucous membrane than calomel. The w r i t e r has used it extensively in both private and hospital practice, and can testify to its effic acy. It is best given with powdered cane-sugar or sugar of milk. Mix the drug with an equal quantity of milk-sugar, and give from a half to a grain of the mixture three times a day. Continue this for a few weeks, and then increase the dose to two grains of the mixture. Sometimes gastro-intestinal derangements occur, in spite of every care, and looseness of the bowels results. In such cases, the addition of prepared chalk, compound cinnamon powder, and even opium, will relieve the condition. The w r i t e r has found a combination of bismuth carbonate and petroleum emulsion very efficient. Five grains of bismuth carbonate are added to every drachm of the emulsion and half a drachm of the MIXTURE mixture, may be administered, every four hours, until the looseness is corrected.

It is considered by many to be a grave error to give opium to a child, but the w r i t e r has administered it frequently, in small doses, without any untoward result.

Calomel is sometimes used in hereditary syphilis, but its exhibition is much less popular than that of gray powder. The w r i t e r has abandoned its administration on account of the irritation it causes in the intestines. When employed, it may be given in milk, honey, syrup or sugar, in doses varying from a twelfth to a sixth of a grain. If it causes diarrhoea,

it may be combined with Dover's powder (a sixth to a third of a grain), or bismuth and petroleum emulsion may be used.

The solution of the perchloride of mercury, in five-minim doses in milk, is very useful in some cases.

Protoiodide of mercury is very much used on the Continent, and seems to give excellent results.

Van Swieten's liquor is used in France, but is objectionable inasmuch as it contains alcohol. It consists of fifteen grains of corrosive sublimate, three ounces of alcohol, and thirty ounces of distilled water; of this mixture, one to two teaspoonfuls are given.

Inunction.

Inunction and oral administration are undoubtedly the best methods of giving mercury to children. Inunction is easy, efficient, and convenient; it is even more certain in its action than oral administration. It is extensively employed in the Leeds Union Infirmary, where it has given excellent results.

About a third or half a drachm of mercurial ointment is used, alone or mixed with adeps benzoatus or vaseline. Scott's drssing is sometimes employed. The best way to give it is to rub it gently into a limited area of the skin for a few minutes, after thoroughly cleansing the area to be manipulated. Each application should cover a different part of the surface. The abdomen, legs, palms, soles, back, and axillae are useful regions for the purpose. Sometimes the ointment irritates the skin; and in that case other parts must be selected and the irritation allayed by dusting-powder; the irritated part must not be rubbed. A common method of applying the ointment is to place it on a binder, and so allow the child's movements to do the rubbing in.

The ointment may be used daily for five weeks at a time, followed by a period of a week's rest; or it may be applied every second day.

Mercurial Baths.

Mercurial baths are very useful in some cases, and the drug acts well when given by this method. They must not be employed if there is any ulceration of the skin. Add ten to

fifteen grains of calomel to each bath, and allow the child to remain in it for five minutes, taking care that none of the solution enters the patient's mouth.

When any of the above methods of treatment do not produce any improvement within a month, other methods should be employed. These methods are subcutaneous and intramuscular injections. They are not much employed in this country as yet, but doubtless their use will soon be much more extensive. The perchloride of mercury - one-fiftieth of a grain - should be injected daily for a week, then every alternate day for another week, and finally as often as the health of the child permits and as seems necessary. In some cases it would be advisable to return to inunction or oral administration as soon as there was any improvement observed. The neutral salicylate of mercury is used on the Continent, a twenty-fifth of a grain being given at a time. The opinion in this country regarding injections of mercury is that they are unnecessary, and that they possess no advantages.

Suppositories of gray oil are recommended in hereditary syphilis by some, and doubtless they have some advantages (see later) (p.223).

In addition to the above methods of treatment, plaster mulls, as recommended by Unna, are used. They are efficient, but sometimes cause irritation, and are composed of mercurial plasters for application to the back.

Mercury, in addition to curing the syphilitic manifestations, improves the general health and sometimes produces undesired effects. Stomatitis and salivation are not easily produced in children, but if they occur, the mercury must be stopped at once. The iodides are useless in the treatment of hereditary syphilis.

The question as to the DURATION OF TREATMENT is much discussed. Some recommend its cessation with the disappearance of the symptoms, whilst others advise its continuance for a year after all symptoms have gone. Why should an infant with

hereditary syphilis not be treated with the same care, and as long as, the adult? Syphilis is the same disease in the child as in the grown-up person, and it calls for the same treatment. Mercury should be given for a year at least after the last sign of the disease has vanished, and it should not be given up until the child has been in good health for at least a bout six months.

During the period that mercury is given, it is best to exhibit it intermittently; treat about six or eight months at a time, then stop for a fortnight.

The administration of mercury is the essential point in the therapy of hereditary syphilis, but it is by no means the only one.

The DIET of the child is most important. If at all possible, the child should be breast-fed, but, if that is impracticable, it must be fed on the bottle, as a wet-nurse is not to be thought of. The contents of the bottle should consist of milk, barley-water, cream, potassium citrate, and Virol with a little sugar. The quantity of each constituent will naturally vary with the age of the child. The addition of a small quantity of Virol is an excellent tissue-builder, and it is advocated very strongly by the w r i t e r. Every article used must be kept scrupulously cleaned, and be also specially reserved for the child. Any gastro-intestinal disturbances are treated with bismuth carbonate, bismuth salicylate, bismuth and petroleum emulsion, etc. Sometimes the Virol causes looseness of the bowels and requires to be discontinued for a time.

FRESH AIR is a necessity, but care must be taken not to expose the child to any sudden changes of temperature or any depressing condition.

CLEANLINESS is a sine qua non. The skin must be kept dry, clean, and well powdered; the groins, genitals, and axillae need special attention.

TONICS are very beneficial. Cod-liver oil, with or without malt, maltine, Scott's emulsion, or syrups containing iron or calcium are useful adjuncts, especially if there be anæmia.

All DISCHARGES and SECRETIONS must be carefully attended to lest other healthy persons become contaminated.

At the approach of PUBERTY, it is a good practice to give a short course of mercurials - say, for four months.

SYMPTOMATIC TREATMENT.

Some of the symptoms require treatment in addition to the routine measures usually adopted.

The RHINITIS requires special attention. The nose should be kept free of all crusts by means of lotions and ointments; the ointment of the yellow oxide of mercury or the blue ointment and vaseline, and boracic acid solution are very useful. The nose should be flushed out with weak antiseptic lotions, e. g., 1 - 10000 perchloride of mercury. Sometimes nasal breathing is obstructed, and the infant cannot suck; in such cases the application of 1 - 1000 adrenalin solution gives relief.

MUCOUS PATCHES, EROSIONS, and FISSURES about the lips, ULCERS and SORES may require cauterizing with silver nitrate (1 to 2 grains to the ounce). Calomel powder may be sufficient in some cases, while iodoform may prove efficient in others.

RELAPSES are treated in the same way as the primary condition.

LATE SECONDARY SYPHILIS.

Late secondary syphilis is best treated with iodides. Any preparation containing iodine is good, although sodium and potassium iodide, in doses varying from three to eight grains a day, are most commonly used.

The syrup of the iodide of iron is very useful in the case of anaemic children.

A c q u i r e d S y p h i l i s.

ABORTIVE TREATMENT.

It is impossible to abort syphilis when the chancre has once appeared; syphilis may abort itself, but such cases must be regarded with suspicion and thoroughly treated. The chancre is merely the local manifestation of a general infection, and

attacking the chancre is a useless measure for aborting the syphilitic seizure.

EXCISION and CAUTERIZATION of the chancre have been tried without success, but are still recommended by some writers.

Hare (System of Therapeutics) and Hutchinson (Syphilis) advocate these measures. Cauterization, by means of fuming nitric acid, pure carbolic acid, chromic acid, and the actual cautery, have been the means employed.

The only abortive treatment that is worthy of the name is the application of a 30 per cent. MERCURIAL OINTMENT within twelve hours of connection with a syphilitic female; but this is not absolutely certain in its action, and really comes under the heading of Prophylaxis (vide supra).

H Y G I E N E, E T C.

Hygiene in syphilis is of prime importance, and hygienic treatment means the observance of all the ordinary laws of health. The treatment must be local and general; the patient should be kept in the pink of condition, so as to render him able to manage the tedious course of mercurial treatment in front of him; and the physician should acquaint himself with the patient's idiosyncrasies and know as much about his character as possible, as such knowledge will enable him to deal wisely with his patient during the time that the treatment continues.

The MOUTH should be kept in order. The patient should be advised to visit a first-class dentist to have his teeth carefully examined. Tartar must be removed, caries arrested, and every possible cause of local irritation taken away; to obtain these, the teeth should be scaled, decayed teeth should be stopped, and stumps should be removed. After the teeth have been attended to, the patient should be instructed to clean them thoroughly, twice a day at least, with a good tooth-powder or paste. No débris should be allowed to remain in the mouth, which should be rinsed after each meal. Mouth-washes containing alum, borax or potassium chlorate are very useful. The care of the teeth also includes the care of the gums, which should be kept in the best possible condition.

SMOKING and CHEWING should be restricted and stopped, if possible, as tobacco tends to the formation of mucous patches, which may be the means of transmitting the disease to others; the nicotine habit delays cure in all cases and has an especially unfavourable influence on the second stage of the disease.

ALCOHOL must be avoided during the period of active symptoms and, if possible, stopped altogether. It is the born enemy of syphilis, it diminishes the resistance of the patient, and causes potassium iodide to have an attenuated action. It is to the tertiary stage what tobacco is to the secondary.

The alimentary tract should be kept in a perfect working order; DYSPEPSIA should be relieved and constipation corrected. Regularity of the BOWELS is essential. The DIET should be generous, as low diet causes the patient to yield too soon to mercury; it should therefore be as little altered as possible. No special diet is necessary, but the patient should abstain from anything that might cause diarrhoea, such as coffee and fruit. Eating and drinking must be in moderation.

Special DISHES and TOWELS should be put aside for the sole use of the patient during the contagious period, and intercourse demanding CONTACT WITH OTHERS must be avoided.

Special stress must be laid on the fact that KISSING is dangerous, and that ARTICLES used by the patient are liable to propagate the disease. Patients are so liable to kiss children that they must be specially warned about this; and they should be instructed to inform the dentist they visit that they have syphilis, so that he may take proper precautions when dealing with them.

EXCESSES of any kind must be forbidden - whether venereal or otherwise. REGULAR HABITS are a sine qua non; in fact, the patient must lead the SIMPLE LIFE.

AIR, EXERCISE, and LIGHT, essential to all animal well-being, are particularly necessary in syphilis. The patient must have plenty of fresh air without exposure to sudden changes of temperature. Sometimes a change of air, such as is forthcoming from a sea voyage, is beneficial and may aid the action of drugs.

To protect himself against CHILLS, the patient should be warmly clad, but should wear nothing irritating next the skin.

Inactivity must be tabooed, as EXERCISE of body and mind is essential. A healthy outdoor life should be led, and such exercise as riding, driving, boating, golfing, and tennis afford should be taken in moderation.

Cleanliness should be insisted upon, and, if a daily BATH is not taken, it should be recommended. A daily hot bath is very beneficial, as it induces cleanliness, and enables the patient to tolerate larger doses of mercury than he otherwise would.

TONICS are beneficial, and in some cases essential. Fellows' or Easton's syrup, cod-liver oil, preparations of malt, petroleum emulsion, and arsenical mixtures are amongst the best of this class.

SWEATING.

The treatment of syphilis by sweating is old-established, and it can be accomplished in various ways. Keeping the patient in BED, or advising residence in a HOT CLIMATE, will act slightly in this way.

HOT AIR or STEAM BATHS induce perspiration, and are used by not a few practitioners. Any of the cabinet baths advertised suit very well; hot air is obtained when no water is placed over the lamp, while steam is provided with the aid of that liquid. The patient remains in the bath until sweating occurs, and he is then put to bed between blankets.

PILOCARPINE is used to induce diaphoresis, being given hypodermically; about a sixteenth of the nitrate should be exhibited in this way. When undergoing this treatment, the patient is placed between blankets, and has a waterproof beneath him and a hot bottle at his feet. After the sweating has ceased, he is thoroughly dried and wrapped in warm blankets. This treatment is useful in cases of syphilis of the eye and ear.

Zittmann's treatment is a special method for the induction of perspiration.

ZITTMANN'S TREATMENT.

This is an empirical method of treatment for chronic rebellious cases of tertiary syphilis. The amount of mercury

contained in the decoctions is infinitesimal, and the free sweating and purging, combined with the small amount of mercury in an easily digestible form, is the basis of the treatment. It is of service when mercury and iodides produce no effects in whatever form administered, but the advent of arylarsonates will probably oust this treatment altogether.

The principle of the treatment consists in keeping the patient in bed, except for an hour a day, in a room heated continuously throughout the twenty-four hours to 80°F., and administering large quantities of the decoctions and purgative pills. The patient leaves his bed only for a daily hot bath, and to obey the calls of nature.

The course of treatment lasts fourteen days; if the result has been satisfactory and the general health has not suffered, another course is usually given. It is not wise to give more than two courses without a rest.

The evening before the treatment is commenced, two of the following pills are administered:

℞

Hydrarg. subchlor., gr. i.
Ext. colocynth. co., gr. iiss.
Ext. hyoscyam. gr. i.
M. Ft. pil.

The diet is light and consists of boiled eggs, bacon, tea without sugar, vegetables, meat, fish, poultry, and soup. Fruits and spices are forbidden.

The patient drinks one quart of the following decoction every morning - half a pint at 9 a.m., 10 a.m., 11 a.m., and noon, as warm as possible:

℞

Rad. sarsae contus., ℥iv.
Sem. anisi contus.
Sem. foeniculi contus., āā ℥i ℈i.
Fol. sennae, ℥i.
Rad. glycyrrh. contus., ℥iv.

Add, in a linen bag,

Sacchar. alb.

Alum.sulph., āā 3i ℈i.

Hydrarg. subchlor.,3i ℈i.

Hydrarg. bisulph. rub.,℈i.

Aq. Cong. iii.

Boil gently down to one gallon,press and strain,and put into forty-ounce bottles.

Take the dregs left after straining off the previous decoction and add to them:

Rad. sarsae contus.,℥ii.

Cort.limon.contus.

Sem. cardom.contus.

Rad. glycyrrh.contus., aa 3i.

Aq. Cong.iii.

Boil gently down to one gallon,strain,and put into forty-ounce bottles.

At the end of every fifth day,the pills given at first are repeated.

SPA TREATMENT.

The treatment of syphilis by means of mineral waters is not of recent origin; Fracastorius,in his famous poem,alludes to the healing properties of sulphur springs.

Mineral waters do not by any means constitute a cure for syphilis,but are of only secondary importance.A course of treatment at some spa,such as Aix la Chapelle,is useful after a course of mercury,as it helps to eliminate the metal from the system and stimulates metabolism.It is also useful when the administration of mercury or the iodides,or both,does not prevent relapses,and also in cases of malignant syphilis.

Probably much of the benefit of spa treatment is due to the regular life the patient leads,and to the attention paid to hygiene; but there is no doubt that sulphur is beneficial,as it aids the antisyphilitic action of mercury and tends to prevent mercurial intolerance.

At Aix la Chapelle,good results are obtained by the

inunction of mercury, as the details are so well understood and the rubbing is done by trained attendants.

Saline waters have a powerful action on nutrition, and they are indicated when there is cachexia. Sulphur waters are best of all for syphilis; they are indicated at any stage of the disease, but should not be given to patients with arterio-sclerosis, hepatic disease, or neurasthenia. They have a tonic and stimulant action, and they increase the absorption and action of mercury. Patients who cannot stand mercury well, and require prompt and energetic treatment, may take the drug well at some sulphur spring. Arsenical waters are useful when syphilis affects a torpid nature.

SERUMTHERAPY.

The aim of recent investigations into the cause and cure of syphilis has been the production of a serum that will vanquish the disease; but so far there has been no marked success, although it must not be taken as proof that recent work has been in vain. Every attempt, even though it has been a comparative failure, is an advance in the right direction, and sooner or later success will surely crown the work undertaken in this field of therapeutics. It scarcely seems credible that a curative serum will soon be an accomplished fact, but such undoubtedly is the case. Its advent will revolutionize the treatment of syphilis, and will place in the hands of the physician a weapon that will do mankind an incalculable amount of good. What would be the result of the production of preventive and curative sera can only be imagined. One of the great scourges of humanity would become as a mere pigmy in the hands of medical men, nations would benefit, and sufferers would rejoice.

Prevention is the aim of medicine, and the physician of the future will deal with prevention rather than cure. Everything points to the discovery of a preventive serum for syphilis.

Wassermann, Neisser, and Bruck claim to have demonstrated the development of a syphilitic immune substance in infected monkeys, but the practical importance of this is not yet manifest.

Many researches have been conducted for the production of syphilitic serum treatment, but the recent discovery of the cause of the disease, and the fact that it can be produced in apes, would seem to have revolutionized all our laboratory methods in this direction.

Metchnikoff and Roux have undertaken a series of experiments in order to manufacture a serum from monkeys, but they have not yet been rewarded with success. Monkeys were chosen not only because they were inoculable with syphilis, but because they furnish a serum which has very little haemolytic action on human red blood-corpuscles.

The results so far obtained show that the syphilitic virus is very fragile and soon loses its activity outside the body. It also loses its virulence when heated to 48.C., and when dried it does not traverse porcelain filters.

Metchnikoff says that better results will be obtained when it is found possible to cultivate the spironema pallida in vitro.

Such is the state of our knowledge concerning antisyphilitic sera, but it would be interesting to note what has been attempted.

The first experiments were made by Tommasoli, who injected the serum of animals who were immune to syphilis.

Finger and others employed human sera obtained from patients with tertiary syphilis, from cases of secondary syphilis successfully treated by mercury, and from infants with hereditary syphilis.

Richet and Hericourt made a further modification by using the serum of animals previously inoculated with human serum obtained from cases of primary and secondary syphilis.

The next attempt was made by Tarnowski, who injected serum from horses mercurialized by injections of calomel.

All these experiments were tried in the interests of science, but they have unfortunately met with no success.

MERCURY.

HISTORY OF MERCURY IN SYPHILIS.

Mercury has been known to medical science for centuries, but it has not always been regarded with so much favour as it is now. At first it was regarded solely as a poison, and was not used for therapeutical purposes; but it was employed in the treatment of disease in the Middle Ages. At the time of the great epidemic, mercury was utilized in the treatment of syphilis, but was soon given up by the majority of physicians on account of the ill effects produced. In spite of the discredit into which it fell, mercury was not entirely abandoned, as a few practitioners continued to use it.

The advantages of mercurial treatment were recognized during the great epidemic, and cases in which other remedies failed were successfully cured by the exhibition of mercury. Although the value of the drug was more or less recognized, many reserved it for severe cases, and continued to employ other medicaments in a routine fashion.

It was first used externally only, but later on other methods of employment were discovered, and plasters, fumigations, inunctions, and washes came into prominence. The plasters and washes resulted in so much irritation that they fell into disuse; fumigations were productive of similar results in unskilful hands, and they soon passed out of the field of therapeutics. The fumigations were preceded by bleeding, were continued for too long a time, and so often exhausted the patient that one is not surprised at their abandonment.

Not until the first half of the sixteenth century was well advanced did any one venture to give mercury internally; Matthiolus, in 1535, was the first to exhibit the drug in this way. This method at once came into general use, it was employed exclusively by all who professed to cure syphilis, but ignorance of the action of the drug resulted in grave mistakes being made. It was thought that salivation must be produced before the drug really acted, and the salivation of the patient became the aim

of everyone who administered the metal. This mode of action continued for over two hundred years before the futility and danger of such a procedure was recognised.

The result of this giving of mercury to excess resulted in the rise of the anti-mercurial school of syphilologists, which, even at the present day, influences the minds of some physicians. There is no doubt that very few deny the good effect of mercury in syphilis, but those who do show how great the reaction against the use of the drug was at one time.

The opponents of mercury denied the use of the metal in syphilis, said it tended to produce tertiary lesions, and attributed the affection to it at one time. There is no doubt that they had much to disgust them in the manner that mercury was employed and the disastrous results it produced, and that they were in the right when they cried out against its employment in the manner then in vogue; but they went to extremes when they demanded the abolition of mercury from the treatment of syphilis. The war between the mercurialists and the anti-mercurialists was bitter and prolonged.

Graves attributed constitutional effects to mercury, and said that they were similar to those produced by syphilis; Hunter held that new diseases arose from the use of the drug; and Herman and Bärensprung agreed that mercury deteriorated the constitution of the patient, was not necessary for the cure of syphilis, and favoured the development of destructive lesions.

The experience of others in treating syphilis without mercury was published about the year 1817, and was so favourable that many adherents were gained by the anti-mercurialists. In Scotland, Thomson was the man who did more for the anti-mercurialists than any other, and in Edinburgh at the present day the influence of his teaching is still felt to a certain degree.

The test of time, however, was sufficient to prove that mercury could not be done without; it came into favour again, and a more profound knowledge of the drug resulted. The method of administration is now changed; small doses are given, the large and injurious doses of former times being now abandoned. The

constitutional effects of the remedy are now avoided, and of affections due to ~~syphilis~~ MERCURY very little is seen nowadays.

Some years ago, potassium iodide had an enormous vogue and reputation, and mercury was relegated to a back seat; but during the last ~~fifteen~~ twenty years the iodide has lost some of its former popularity, and mercury has correspondingly gained. This gradual change of opinion has been coincident with the employment of mercury in smaller doses.

Mercury is still the Divine remedy for syphilis, but how long it will remain so is unknown. The fecent advances in the use of the arylarsonates, the discovery of the spironema pallida, the transmission of syphilis to monkeys, and the researches being conducted for antisyphilitic sera make one hesitate to express any definite opinion. The present generation is undoubtedly witnessing an epoch-making period in the treatment of syphilis, and the fate of mercury hangs in the balance.

PHARMACOLOGY OF MERCURY.

Mercury is one of the most poisonous inorganic poisons, and its action on proteids extends to all forms of living matter. Whenever it comes in contact with albumins, it forms an albuminate and destroys life. The soluble salts of the metal are more powerful than the insoluble, because they come into more intimate contact with the tissues and act more powerfully on that account. The effect of mercury is seen in its effects on the lower forms of life. Its antiseptic and antiparasitic actions are very marked, and one part of mercury in fifty thousand of water will prove lethal to the lowest orders of the animal kingdom, while stronger solutions destroy bacteria. There is no doubt that the soluble salts of mercury are among the most powerful antiseptics now available. In the case of the higher animals and man, the same destructive effects are induced.

When the salts of mercury are applied to the skin, especially the mercuric preparations, irritation is produced and mercury is absorbed. The amount of irritation varies with the quantity and particular variety of mercury used in this way, and sloughing may result. Subcutaneous injections cause pain, swelling, and sometimes

inflammatory reaction.Minute particles of mercury pass into the hair and sebaceous follicles,from which they are absorbed; after absorption,mercury acts more especially on the alimentary tract and kidneys,although the other organs are not exempt from its effects.

The salivation and stomatitis,which occur so frequently under mercurial medication,are not due to the local action of the drug,as they occur in whatever form the metal is administered.

In the stomach any preparation of mercury becomes a complex albuminate,consisting of mercury,sodium chloride,and albumin, which is soluble on account of the sodium chloride present in the stomach.The same action occurs when mercury is injected: hence sodium chloride is added to increase the solubility.

The intestines are acted upon by mercury,especially the caecum and colon;and small doses of mercury given by the mouth act as purges,causing soft stools.This action is apparently due to the long sojourn in them and the special affinity for the epithelium;this leads to the partial solution of the salts and to the development of their irritant action.Very little of the drug is absorbed,and most of it is thrown out unchanged by the bowels.

Mercury is supposed to act as an indirect cholagogue; but this action is more apparent than real,as there is no distinct clinical or experimental evidence that the liver is directly affected.The mercury may preserve the bile from intestinal putrefaction,and so give rise to the belief that the secretion of bile is stimulated.

Another organ that is powerfully affected by mercury is the kidney. A moderate dose of calomel induces marked diuresis, particularly in cases of dropsy due to cardiac disease.

The action of mercury on the nervous system is obscure, and no definite statements can be made.

There seems good reason to believe that small doses of mercury,given for some time,increase the weight and nutrition.

Mercurial preparations circulate as oxyalbuminate of mercury in the blood.In health the number of red blood-

corpuscles and the percentage of haemoglobin are said to be increased at first, but afterwards diminished; in syphilis a fall in the amount of haemoglobin is succeeded by an increase to beyond that present before the treatment. Small doses of mercury act as a tonic in subjects debilitated by syphilis, and improve the condition of the blood.

After prolonged administration, mercury is found in almost every organ of the body, but larger quantities are found in the liver and kidneys than elsewhere; and it seems to be stored in these organs longer than in any other. Traces are found in the large intestine, spleen, bones, brain, etc.

Mercury is eliminated in all secretions, but chiefly in the urine and faeces. It has been found in the milk, saliva, sweat, and bile, and has also been shown to pass to the foetus through the placental circulation. The excretion begins in a few hours, if injections have been employed, and in two or three days when it has been given otherwise. It takes place slowly and irregularly, and mercury has been detected in the urine years after its administration has been stopped.

Whether administered by the mouth, by inhalation, or by injection, mercury enters the lymph channels and is distributed throughout the body by the blood as an albuminate, which is insoluble in water, but is rendered soluble by excess of proteid and also by chloride of sodium in the tissues.

ACTION OF MERCURY IN SYPHILIS.

The curative effect of mercury in syphilis can be explained only by supposing that it has a bactericidal action on the syphilitic virus. The idea that the therapeutics of syphilis consist of administering mercury, and so graduating the dose of the drug that the syphilitic poison is combated, is general.

It is also probable that mercury acts indirectly by causing the production of alexines, which are substances produced in the blood and have the power of neutralizing the pathogenic agent. The organism certainly plays an important part in the cure, and appears to furnish an antitoxin.

No matter how mercury acts, its virtues are attested by the vast majority of medical men. Its curative and preventive

properties are now well known, and they can scarcely be disputed. In primary and secondary syphilis, mercury is especially indicated, while in the tertiary stage it should be given with iodide of potassium. At present it is the only drug that can cure syphilis and prevent relapses, if they can be prevented at all.

A comparatively small minority still oppose the administration of mercury in syphilis, and have gone the length of affirming that instead of curing the disease it produces tertiary symptoms. Less extreme opponents of the mercurial treatment say that the drug renders secondary symptoms latent, and that they reappear in the course of time. For fuller details see under the history of mercury.

TOXIC SYMPTOMS OF MERCURY.

It so happens that it is necessary to give more than tonic doses of mercury to control syphilis in some cases. The result is that the patient is poisoned and toxic symptoms appear.

SALIVATION AND STOMATITIS.

People vary in their susceptibility to mercury; some can take it in considerable quantities without any bad result, while others are readily affected by small doses given for a short period. Salivation is the commonest result of over-dose, and it may result from any preparation. Gingivitis and debility are predisposing causes. The salivation is apparently due to the direct action of the mercury on the secretory apparatus.

In mild cases the saliva is tough, stringy, and increased in quantity, and the teeth are tender when the jaws are snapped together. A certain amount of anaemia, which causes pallor, and debility are present and the patient may complain of headache, giddiness, and pains in the abdomen.

If the administration be continued, the patient complains of a metallic taste in the mouth and a soreness of the tongue and gums. The breath has an unpleasant, foetid odour, the tongue is coated and swollen, the gums are congested, and the flow of saliva is much increased.

In the more advanced stages, the gums are congested and

even ulcerated in parts, especially behind the lower incisors and last molars; they also bleed. The teeth loosen, and oedema of the buccal mucous membrane and tongue supervenes. The parotid and sublingual glands enlarge, and the flow of saliva is copious.

The last stage is accompanied by falling out of the teeth, gangrene of the gums and lips and throat, and necrosis of the jaw. Exhaustion and inanition, due to the difficulty in swallowing and the absence of a desire for food, may supervene. The saliva runs from the mouth and irritates the lips and skin. The tongue is enormously swollen and gangrenous. This stage is rarely seen nowadays, but was common when mercury was given to excess in the treatment of syphilis.

Affections of the nervous system may accompany salivation. Mercurial tremors, first affecting the arms and hands, then the legs, and finally the whole body, are well known. Mercurial erethism is a condition of abnormal irritability, timidity, shyness, accompanied by muscular weakness, and sometimes developing into sleeplessness, delirium, and transitory hallucinations.

Treatment of Salivation and Stomatitis.

The prevention of salivation and stomatitis is all important, and the measures required consist in great attention to the care of the gums and teeth and avoidance of any irritation. Decayed teeth must be drawn or stopped, the gums must be cleaned, and smoking must be avoided. Mouth washes must be used regularly and the teeth cleaned at least twice a day. The patient's diet must be light, nutritious, and easily digested, and fresh air and exercise are esential. The physician must instruct the patient to report himself whenever his saliva becomes increased in amount, or when his gums are sore and swollen.

When the symptoms of salivation have occurred, a modification of the diet, a reduction in the amount of mercury given, a restriction of the fluids consumed, and carminatives often cause their disappearance.

If such measures are inapplicable or do not meet with success, other means must be adopted. The administration of mercury must be stopped. The teeth must be brushed once or

twice a day with a solution containing equal parts of tincture of myrrh and tincture of iodine, and the mouth should be rinsed out after each meal with a solution of potassium chlorate, alum, or boracic acid. Potassium chlorate lozenges may be sucked by the patient with advantage.

The foetor of the breath may be alleviated by the use of a weak carbolic mouth wash, a solution of phenate of soda, or chlorinated soda solution. Severe salivation may require treatment by means of atropine (gr.1/320) with sugar of milk. Any ulcers should be cauterized with silver nitrate or the acid nitrate of mercury.

Severe cases require free purging, diuresis, and low diet in addition to the foregoing methods. Potassium chlorate may be used advantageously, in fifteen-grain doses, three times a day.

When the salivation and stomatitis have been cured, the patient should have a course of tonic treatment before mercury is given again.

ENTERITIS.

Enteritis is more liable to occur when mercury is given by the mouth than by other channels, and is due to the action of mercury on the intestinal wall and to elimination of the drug by the bowels. The stomach is involved as well as the intestine, and the condition is really a gastro-enteritis. The patient complains of loss of appetite, nausea, vomiting, and a feeling of gastric discomfort, and colic and diarrhoea occur. The diarrhoea may be so severe as to cause blood and mucus to appear in the stools. Anaemia and debility coexist with these symptoms.

Treatment.

The administration of mercury must be stopped, and the patient put on a low diet. Bismuth, salol, β-naphthol, and opium are the drugs used to counteract the condition. The following prescription is very useful:

R/

Bismuth. carb., gr.xv.

Salol,gr.v.

Pulv.tragacanth.co.,gr.v.

Liq.chloroform.co.,m.v.

Aq. chloroform.ad ℥i.

M. Ft.mist.

Sig.- To be taken every three hours.

Dover's powder,in five or ten grain doses,may be given;so also may be lead and opium pills.

Tannigen, in five or ten grain doses every two or four hours,will be found useful in some cases.

SKIN ERUPTIONS.

Cutaneous eruptions are occasionally seen when mercury is given by the mouth,and may occur without any other symptom of poisoning,except the fever and discomfort they themselves induce.They vary greatly in form,consisting of erythema,urticaria,or eczema;they may each occur alone or with one another.The eruption generally lasts for from one to three weeks,but in some cases may persist for months;in othersthey may relapse.

Treatment.

Stop the administration of mercury,apply soothing lotions or ointments,and give purgatives.

NEPHRITIS.

Nephritis is easily produced when the kidneys are diseased,and also when mercury is given in excess.Any nephritis makes the kidney a bad filter for mercury.The urine contains albumin,and it may contain sugar also whenever the treatment has been of long duration.The urine should be frequently examined during the mercurial course of treatment.

The treatment consists in stopping the mercury and,if necessary,counteracting the symptoms observed.

OTHER TOXIC SYMPTOMS.

Other symptoms may be induced by toxic doses of mercury, such as cachexia, which is evidenced by pallor, emaciation,restlessness and weakness,and chronic nephritis.

CONTRAINDICATIONS TO THE USE OF MERCURY.

Mercurial treatment is contraindicated, or requires special caution in many cases. There is really no absolute contraindication to the occasional use of the drug. In severe nephritis it must be employed with great caution, and the urine and blood-pressure should be examined frequently.

Infectious diseases, tuberculosis, and other wasting ailments are indications for the cautious administration of mercury; during acute infectious fevers it is advisable to stop the drug entirely, and in tuberculosis to combine it with potassium iodide.

Mercurial dusting powders and ointments must be used with care when the iodides are being administered, as the iodide excreted forms iodide of mercury, which may cause corrosion.

In cases of profound cachexia and weakness, care must be exercised in exhibiting mercury.

WHEN TO BEGIN THE ADMINISTRATION OF MERCURY.

The time when mercurial treatment should be commenced has been a much-debated question, and even at the present day authorities differ; but all agree that treatment should be begun as soon as syphilis is diagnosed. Some say that it should be commenced whenever there is a suspicion of syphilis, while others recommend that it should be delayed until the diagnosis is confirmed by the appearance of the secondary symptoms.

The recent discovery of the spironema pallida, as the cause of syphilis, should put an end to all doubt; it should be searched for in all doubtful cases of chancre and, if found, be the indication for immediate treatment. The result of this is that treatment is instituted at a much earlier date than heretofore, as its presence is conclusive proof of the existence of syphilis.

It must be remembered that the patient should be convinced of the necessity for prolonged treatment at the outset, as a short course of mercury is practically useless so far as cure is concerned.

DURATION OF TREATMENT.

At the beginning of the nineteenth century, a six months' course of mercury and a few months' treatment with iodides were considered sufficient;but nowadays this is considered too short a time,and nearly all agree that a course of treatment extending over three or four years,with periods of rest,will be necessary.

A more prolonged course of treatment should be insisted upon if the patient has any intention of marrying.

ADMINISTRATION OF MERCURY TO WOMEN.

The administration of mercury to women is practically the same as in the case of men,except that women require smaller doses and that irritation of the stomach is more liable to occur. In women,too,the anaemia is more severe,as a rule,and pains are more frequent.

METHODS OF ADMINISTERING MERCURY.

Meecury can be administered in various ways,and each method has its advocates.The majority of the methods are efficient,but each has its special qualities.The essential point in the administration of mercury is that it shall enter the blood and be carried to the tissues,and any method that does this without disturbing normal metabolism is sufficient. Oral administration is the simplest and most comfortable method of exhibiting the drug,and it is therefore the most popular.The objection to oral administration is that it is one of the least efficient methods,and is liable to derange the digestive functions.

ORAL ADMINISTRATION.

This method is easy to carry out and is the one preferred by most patients and physicians,as the patient requires to be seen only at intervals,and he can be treated without any one being aware of the fact.The majority of cases in this country can be efficiently treated by this method,but there are some in which the digestive tract seems unable to absorb

mercury in whatever form administered. In these cases one of the numerous other methods must be employed.

The preparations are numerous and varied; but no one can be used successfully in every case, as one may suit one patient and not another. The palm must be given to HYDRARGYRUM CUM CRETA, MERCURIC IODIDE, and BLUE PILL as being the best of all the mercurial preparations. No matter what preparation is used, the point to be attended to is that numerous small doses are better than one large dose.

In tuberculous patients mercury is badly borne, and should be combined with potassium or other iodide to lessen the difficulty in question.

Hydrargyrum cum creta is an excellent preparation and one of the least variable. In Britain it is the most popular, and gives as good results as any other. It may be given as a pill, in tablet form, or as a powder. Tablets and pills are very convenient and largely used in the case of adults, while the powder is used chiefly for children. The preparation contains 33 and 1/3 per cent. of mercury.

The w r i t e r has used pills of hydrargyrum cum creta extensively, and can testify to their efficacy.

The initial dose is one grain three times a day; the dose is gradually increased to the amount necessary to cure the patient. Six grains a day may be easily taken, but four grains daily are usually sufficient. To lessen the liability to irritation, one grain of pulv. ipecac. co. may be advantageously added to each dose.

Blue pill is a favourite and efficient preparation; but, as it is more liable to attack the gums than gray powder, it comes after it in popularity. As a rule, it is used in the later stages of syphilis, although it can be employed at any time when mercury is required. It is given in one-grain doses, three times a day, and increased one grain daily per week until the maximum dose is reached. To obtain the best results, it should be freshly made, and it should be coated with sugar. If it causes any gastric discomfort, aromatics should be given. Diarrhoea is relieved by the addition of half a grain of pulv. ipecac. co. to

each grain of the blue pill, or by the addition of a quarter of a grain of opium to each two-grain pill.

As in the case of gray powder, four grains a day are usually sufficient.

Keyes (Syphilis) recommends that mercury should be pushed until the gums are touched, and affirms that the half of the amount necessary to do this is the tonic dose and, unless urgently demanded, should not be exceeded.

Iodide of mercury, in the form of the protoiodide, is the favourite American and Continental preparation. It seems to act better than any other in hot climates. Some British physicians use it, but it has not replaced gray powder in the estimation of British practitioners. The dose should be one grain a day to start with, giving a third of a grain three times a day; no more than three grains a day should be administered.

Fournier recommends protoiodide of mercury very strongly, and doubtless has contributed to its extensive use on the Continent.

In America, Garnier and Lamoureaux's granules, each containing a sixth of a grain of the protoiodide, are largely used; and it is said that they purge before they salivate, and so warn the physician of approaching toxic symptoms.

The yellow and green iodides enjoy a considerable popularity in some quarters, and are given in quarter-grain doses, three times a day, to start with, increasing gradually to two grains a day. They are irritating preparations, and should be used only with opium.

The biniodide of mercury is rarely given by the mouth, as it is too apt to produce toxic symptoms.

The SALICYLATE OF MERCURY is used by some, and is given in pill form; each pill contains from a sixth to a fourth of a grain, and one pill is given three times a day.

CALOMEL is disliked by most practitioners, and they are now very few who use it for the treatment of syphilis. When given internally, the pill known as Plummer's pill is usually employed. This pill - pilula hydrargyri subchloridi composita - contains one part of calomel in four and a half parts, and its

dose is from four to eight grains.

PERCHLORIDE OF MERCURY is an efficient and useful preparation, but its use is practically confined to the later stages of syphilis when it is given, in the form of the solution in drachm doses three times a day, with iodide of potassium. It may also be given in powder or in pill form. The liquor hydrarg. perchlor. contains one-sixteenth of a grain in each fluid drachm.

TANNATE OF MERCURY is well spoken of by some authorities and is a good, but irritating, preparation. The drawback to its use is that it is a variable and unstable preparation. It is less efficient than the blue pill or gray powder, and is not be be recommended for routine administration. It is usually given in half-grain doses, combined with an equal quantity of sugar of milk. In London it is used combined with an equal quantity of hyoscyamus.

Of all the preparations mentioned above, the w r i t e r can recommend gray powder, protoiodide of mercury, blue pill, and the perchloride. He has employed them all, and practically confines his attention to gray powder in the early stages and liquor hydrarg. perchlor. in the later ones. Both are efficient and stable preparations, are easy to take, and convenient to administer.

MERCURIAL INJECTIONS.

The administration of mercury by subcutaneous injections was introduced by Scarenzio in 1864; since that time they have been employed more or less in different parts of the world, but it is only within recent years that they have been extensively used.

Bloxam, of the London Lock Hospital, has employed injections of mercury for syphilis for many years, and strongly advocates the method. Until recently, the teaching in this country has been to give mercury by the mouth, and the non-adoption of injections has been due to conservatism, ignorance, and the alleged dangers of the practice. There is no doubt that the injection of mercury is not unattended by danger, but this has been grossly exaggerated; and the fact that Lambkin has given more than fifty thousand injections without an accident

proves that there is little danger, if ordinary precautions are observed.

Ignorance and neglect of the technique probably account for the bad results obtained by many practitioners.

Balzer (Marshall.- Syphilology) says that subcutaneous injection causes the absorption of part of the mercury at once, and its transformation in the tissues and blood; a residual parts remains at the point of injection, combined with the serum in the form of an albuminate, and is absorbed slowly later on; a part is fixed in the viscera, and a part is eliminated daily in the urine.

The advantages of injections are numerous and far outclass the disadvantages. They are easy of administration and ensure the entrance of mercury into the system. In the tropics, no other method is so suitable, and they do not debilitate the patient. The dose is graduated, and on that account the method is a certain one. They have numerous advantages when considered from the patient's point of view. Thus, he can be assured of the secrecy of the treatment - a very important point in some cases. When enteritis, inflammation of the liver, lungs or throat, and the failure of oral administration and inunction demand mercury in some other form, injections are invaluable. They are also extremely efficient in syphilis of the eye and nervous system, and also in cases of severe syphilides. Injections are the most rapid means of diagnosing syphilis by the therapeutic test.

The disadvantage that can scarcely be avoided is pain; the others can usually be avoided by thorough application of the technique, and the observance of strict antisepsis.

They are contraindicated in diabetes, nephritis, and marked visceral lesions of any kind.

A gross error that has been widely circulated is that injections of mercury are a rapid cure for syphilis. This is not the case, and it cannot be too strongly contradicted.

It must also be remembered that this method of administering mercury has not superseded other methods, but is only a valuable addition to therapeutics.

The PREPARATIONS of mercury used for injections are either soluble or insoluble.

The chief SOLUBLE SALTS are:

Biniodide - gr. 1/3 to 2/3

Alaninate - gr. 1/6

Asparaginate - gr. 1/6 to 2/3

Benzoate - gr. 1/3

Perchloride - gr. 1/6 to 1/3

Hermophenyl - gr. 1/3

Mercuric-salicylarsenate - gr. 1/6

Oxycyanide - gr. 1/3

Neutral salicylate - gr. 1/3

Di-odo-para-phenol-sulphonate - gr.1/3
or
Soziodolate - gr. 1/3

Succinimide - gr.1/3

The oxycyanide contains the greatest percentage of mercury (85%), then the perchloride (73%),the the succinimide (50 to 55%),and the alaninate (53%); while the soziodolate contains the least (35%). The biniodide and the soziodolate contain iodine.

The chief INSOLUBLE SALTS are:

	Dose.		Percentage of Mercury.
Calomel.....	gr. 1 to 2	.....	84
Phenate.....	gr. 1½	.....	51
Protoiodide...	gr. 2	.....	61
Salicylate....	gr. 2	.....	59
Thymolacetate.	gr. 2	.....	56

Gray oil.

There are three preparations of gray oil:

Lang's gray oil contains 50 per cent.of mercury,and is composed of two parts of mercury,one part of sterilized anhydrous lanolin,and one part of sterilized liquid paraffin. All ingredients are by weight.Its specific gravity is 1.5;therefore, 2 minims contain 1½ grains of mercury.

Lafay's gray oil contains 40 per cent.of mercury and is made up of forty parts of mercury,twelve of sterilized

anhydrous lanolin, thirteen of sterilized white vaseline, and thirty-five of sterilized oil of vaseline. Its specific gravity is 1.4; therefore, 2 minims contain 1 and 2/5 grains of mercury.

Lambkin's cream contains 10 per cent. of mercury, and is composed of one part of mercury, four parts of anhydrous lanoline, and sufficient liquid paraffin, carbolized to the the extent of 2 per cent., to make ten parts. Ten minims contain one grain of mercury. It is solid at ordinary temperatures, and enough for each injection should be warmed on a water-bath. Any that is not required after warming must not be kept for future use.

Lang's and Lafay's oils require a special syringe, and are so full of little details that Lambkin's cream is usually pfeferred.

Formulae for Injections.

Soluble Preparations.

The bichloride is prepared with sodium or ammonium chloride:

℞

Hydrarg. bichlorid., gr.v. - x.
Sodii chlorid., gr. iii. - v.
Aq. dest., ℥i.

Fifteen minims of this solution are used for each injection, and will contain a sixth to a third of a grain of bichloride of mercury, according as five or ten grains of the bichloride are used in the preparation.

Another formula contains ammonium chloride along with the mercury:

℞

Hydrarg. perchlor., gr.x.
Ammon. chlorid., gr.v.
(Vel sod. chlorid., gr.xx.)
Aq. dest., m.ccc.

Dose for injection, m.v.- x., being equivalent to gr. 1/6 - 1/3 of perchloride.

The benzoate of mercury is best administered with ammonium benzoate, thus:

R/

Hydrarg. benzoat., gr. v.

Ammon. benzoat., gr. xxv.

Aq. dest., ℥i.

Dose for injection, m. xv., being equivalent to gr. 1/6 of the benzoate.

The biniodide may be given with or without potassium iodide, thus:

R/

Hydrarg. biniodid., gr. x.

Potass. iodid., gr. v.

Aq. dest., ℥i.

Dose for injection, m. xv., equivalent to gr. 1/3 of biniodide.

Aspargin of mercury is prepared by dissolving two and a half drachms of aspargin in warm water, and adding oxide of mercury to saturation. The solution is then filtered and standardized to a 1 per cent. solution. Fifteen minims of this solution are used at a time to start with, and the dose is, if necessary, gradually increased.

Succinimide of mercury is rather more painful than the other preparations, and it is a common practice to add cocaine to the solution used for injection; thus:

R/

Hydrarg. succinimid., gr. x.

Cocain. nitrat., gr. v.

Aq. dest., m. ccc.

Five to fifteen minims of this solution are used each time, i.e., 1/6 to 1/3 of the succinimide is given.

Like the biniodide, the sozoiodolate may be used along with an iodide to increase its solubility:

R/

Hydrarg. sozoiodal., gr. x.

Sod. iodid., gr. x.

Aq. dest., ℥i.

The amount used for each injection is fifteen minims,

equivalent to gr. 1/3 of the sozoiodolate.

The other preparations are prepared in the same way. If the practitioner does not care to prepare his own solutions, he will find those made by the large firms of druggists very useful, convenient, and reliable.

Insoluble Preparations.

Calomel should be freshly made as an emulsion containing 2½, 5, or 10 per cent. of the drug. The emulsion is made by suspending the calomel in liquid paraffin or oil. The 5 per cent. solution is most used, and from ten to twenty minims are injected each time. A 10 per cent. solution is useful, if larger doses of the drug are required.

Salicylate of Mercury is used as a 5 or 10 per cent. emulsion in liquid paraffin. One-half or one grain is injected at a time.

Gray oil is the favourite insoluble preparation, and is used in any of the forms mentioned above. It is an emulsion of metallic mercury, and was introduced by Lang of Vienna. The principle in each process is to make an ointment of mercury with lanolin as a basis, and dilute with oil of vaseline or paraffin.

METHOD OF ADMINISTRATION.

All the ingredients used for injections should be sterilized, as should also all the instruments employed. The site of the injection must be carefully prepared and rendered as aseptic as possible. The more care taken in the preparation of the patient, the instruments, and the solution the better will be the results. Carelessness leads to failure and discredit. The best syringe to use is one made of glass.

Soluble salts may be given subcutaneously, but this method is painful and intramuscular injections are preferable. Insoluble salts must be given intramuscularly, as any other method invites abscesses and gangrene.

The wound should be closed with collodion.

The needle should be inserted into the muscle separately to see if any blood escapes. If no blood escapes, then there is no fear of having punctured a vein or risk of embolism. A

fresh needle should be used for each patient.

SITE OF INJECTION.

The site of the injection is an important point. Unless the patient is confined to bed, the buttock is the usual situation; in bed, patients should have the deltoid and suprascapular regions operated upon; some patients, however, prefer the back to the buttock. When the buttock is used, it is necessary to avoid injuring the sciatic nerve, and to select a part which will not interfere with the patient's comfort when sitting. The outer and middle thirds of the gluteal region, one inch above the great trochanter, satisfy these conditions. The area to be avoided is formed by a line beginning one inch outside the posterior superior iliac spine, and ending at the point of intersection of the gluteal fold with the posterior mesial line of the thigh.

No two injections should be made within one inch of each other, and it is a good plan to have an outline of the region on paper, so that the site of each injection can be recorded.

The right and left sides of the body are used alternately.

DOSAGE.

As in oral administration, the point to be attended to is, small doses are sufficient and large ones harmful.

FREQUENCY OF ADMINISTRATION.

Soluble Injections.

Soluble injections have to be given every day, or every alternate day. Less often than twice a week is insufficient. They are given until the gums are touched, and then used less frequently. For symptomatic treatment, daily injections for three weeks are usually sufficient. Soluble injections are commonly used for symptomatic, but rarely for routine, treatment.

Insoluble Injections.

There are two methods of treatment by insoluble injections:

(1) One injection is given every two weeks for a year, or until there have been no symptoms for about six months, then every three weeks for six months, then six months rest, and finally one every month for six months. Relapses call for one injection

every two weeks for three months after they have disappeared.

(2) One injection each week until all active symptoms have disappeared, usually from six to eight weeks, then one every two weeks for three months, followed by two months rest, and finally three months' courses of fortnightly injections, with intermissions for the remainder of two years.

CHOICE OF PREPARATION.

The choice between an insoluble and a soluble preparation is a matter of taste, but insoluble injections are more frequently employed than soluble. The insoluble preparations have been perfected, their methods of administration are better understood, and their effect is more permanent.

Gray oil is the favourite preparation, and it is most suitable for routine treatment. It is efficient and not too painful. Calomel is very painful, and few patients can stand more than six successive injections. It is, however, the most powerful method of administering mercury, and should be reserved for urgent cases only where a rapid effect is required, such as in cerebral and spinal syphilis. The action is insoluble injections is slow to begin, hence one may start with soluble injections to hasten the action of the drug.

Of the insoluble injections perchloride of mercury is generally preferred, although the biniodide is the most efficient and the benzoate the least painful. Basic salicylate of mercury is very good in the early stages, and sozoiodolate in the later. The action of soluble injections is rapid; they are absorbed and eliminated quickly.

DISADVANTAGES.

The soluble preparations require daily visitation of the patient, result in cumulative pain, and are relatively inefficient.

Abscesses and gangrene due to carelessness, embolism, toxic symptoms, and induration are the drawbacks of the insoluble preparations. Embolism is rare, occurring in 0.1 per cent. of cases, but is a real danger. The pain varies greatly, lasts from two to ten days, and usually begins about the second or third day. The danger of producing toxic symptoms is ever present, and

the onset of diarrhoea must be taken as a danger signal. Induration is not so frequent now as it was. When it does occur, the injections must be stopped. It sometimes takes months to disappear and may require excision.

INTRAVENOUS INJECTIONS.

This method of administering mercury was introduced by Bacelli, but it has not come into general use. Some authorities will not employ them, while others advocate their use in certain cases. Syphilitic eye lesions are so destructive, and so quickly so, that the most rapid method of getting the patient under the influence of mercury must be employed. Intravenous injection answers the purpose, and may be employed in such cases. Intramuscular injections are apt to cause bed-sores in bed-ridden patients, and may be replaced by intravenous injections. Paralyzed patients may be treated by this method.

The method has the advantage of being painless, but there is no doubt that it is risky.

The preparations used are the oxycyanide, the bichloride, and the biniodide, which are soluble. On no account can insoluble preparations be employed.

Bacelli's formula is as follows:

℞

Hydrarg. perchlor., gr. i.

Sodii chlorid., gr. iii.

Aq. dest., ℥ii.

Inject m. xv. daily.

The oxycyanide can be used as a 0.1% solution and the biniodide as a 0.1%, 0.2%, or 0.3% solution.

Injections are given daily until the gums are touched, then every second or third day according to the state of the gums. To prevent local thrombosis, the injection is heated to 90. F. before use.

The median cephalic or basilic vein is usually selected. The operation is conducted under strict aseptic precautions, and the injection is made slowly in the direction of the blood-stream.

INUNCTION.

The treatment of syphilis by inunction is one of the oldest methods, and still remains as good as, and better than most, when regular and efficient massage can be given, as proper massage is almost as important as, if not of equal importance, as the mercury. On this account, residence at a spa, where massage is carried out to the best advantage, is beneficial. Spa treatment really consists in massage and a regular life.

The advantages of inunction are numerous and weighty, and are more real than those of most other methods. Inunction is a very convenient method of administering mercury, as it leaves the stomach free from disorder and allows of the administration of tonics. It is efficiacious, even more so than oral administration, and painless. The alimentary tract is less liable to be irritated by it than by giving mercury by the mouth. Syphilitic lesions of the eye and nervous system are well treated by inunction.

It is useful for debilitated patients, for patients confined to bed, for those who cannot take mercury by the mouth, and when the patient is taking a rest from oral medication.

The treatment by this method is not so simple as many imagine; the patient must be seen two or three times a week, the dose of the ointment requires careful attention, and the effect of mercury must be carefully noted. The weight of the patient should be recorded weekly, and toxic symptoms must be looked for both by the physician and the patient who has been instructed what to expect.

In spite of all its advantages, the inunction of mercury has its drawbacks, the chief of these being its objectionable character. Many patients refuse to be treated by it on account of the uncleanness of the method, and in such cases another method must be resorted to. Warm climates are unsuitable for the inunction of mercury. Irritation of the skin may be caused. The avoidance of hairy parts and the shaving of the axillae lessen the tendency to irritation. Another objection from the patient's

point of view is the tediousness of the process. Injections and fumigation are more efficacious than inunction, but their advantages are not so great.

The preparations that can be used are blue ointment and unguentum cinereum.

Blue ointment may be used pure or diluted with lanolin or some other emollient. From half to one drachm of the ointment is used at a time.

Unguentum cinereum is composed of equal parts of mercury and lanolin, with half a part of olive oil; it is used in the same quantities as the blue ointment.

A small quantity of each is used at first, the amount varying with the robustness and sex of the patient, and the dose is gradually increased. The treatment must be stopped when salivation occurs, and the dose decreased when the gums are touched.

It is a good plan to have each dose of the ointment put up separately in waxed paper, so that the patient uses the exact quantity required.

Both the preparations recommended are thoroughly reliable and efficient. The success of the treatment depends on courses with intermissions. The inunction should be carried out daily for three or four weeks, and a rest of one or two weeks should follow. This should be continued for eighteen months, and for the next eighteen months the inunction should be less frequent - say, two or three times a week. During the third year it is advantageous to give potassium iodide whether there are symptoms or not.

If any relapse occurs, the treatment should be recommenced and continued for three months after the disappearance of the symptoms.

Instructions.

The patient should take a warm bath each evening and thoroughly cleanse the skin with soap and water. The part to be employed for inunction should then be rubbed with alcohol after using turpentine. Then the ointment should be rubbed gently, but thoroughly, into the skin for fifteen or twenty minutes. If an attendant does the rubbing, another bath should be taken

immediately after, and the body should be massaged. If the patient rubs himself, then he should wear the same clothes next his skin day and night and have a bath in the morning. The essential point of the treatment is that the ointment should be thoroughly rubbed into the skin.

A different part of the body is employed for inunction each night. The left side of the chest, the abdomen, the inner aspect of the left thigh, the outer side of the left thigh, the inner side of the left arm, the outer side of the left arm, the back, and the corresponding parts of the right side of the body may be used in turn.

FUMIGATION.

Fumigation is another endermic method of administering mercury, and was perfected by Parker of Birmingham. It is a painless process, clean, and every efficient. The mercury acts very quickly, and the procedure is more powerful in its effect than either inunction and oral administration. The other advantages are the same as those of inunction, but, like inunction, is more troublesome than administration by the mouth and is prone to cause unexpected salivation. The danger signal is diarrhoea and, if one acts with that knowledge, no harmful effects should result.

Calomel is the salt that is usually employed, and care should be taken to see that its purity is guaranteed. The quantity used varies from ten to thirty grains. The black oxide of mercury has also been employed, but it is more irritating than calomel; the amount used is about two drachms.

The patient should sit over a lamp, containing the requisite amount of the drug, in a chamber over the lamp. It is advantageous to surround this chamber with a water-jacket to prevent the calomel becoming corrosive sublimate. The drug should not be mixed with water, but should be alone in the receptacle. The patient is enclosed in the bath cabinet, and the lamp is lit. One of the cabinets exclusively advertised for vapour baths is excellent for the purpose. The calomel is sublimed by heat and deposited on the patient's skin. The duration of the sublimation is from fifteen to twenty minutes.

The current is allowed to flow through the bath for fifteen minutes then reduced, reversed, and again increased to two hundred milliamperes.

The lamp is then extinguished, and the patient remains in the cabinet for ten minutes longer to cool. When the process is completed, the patient wraps himself in a blanket or flannel gown and, without any washing or drying, goes to bed at once.

While the patient is in the cabinet, assistance should be at hand lest he scorch himself.

Three baths are given each week for a month, then one or two a week, for two years at least, are given, if no other method is adopted.

The results of this treatment are very encouraging and make it one of the most efficient methods of administering mercury.

BATHS.

Mercurial baths are not extensively used, but must be considered, as treatment can be carried out thereby. They act by causing absorption of mercury, and they may be used with or without electricity.

Corrosive sublimate, one part to twenty thousand of water, is employed. The temperature of the water should be between 80. and 90. F., and the patient should remain in the bath from one to two hours.

Gaertner's method comprises the use of electricity. The apparatus consists of two cells separated by a properly fitting diaphragm; each cell is attached to one pole of a battery of about fifty large Leclanché elements. A graduated rheostat, a galvanometer, and a commutator are also required. About four drachms of corrosive sublimate are dissolved in a warm bath and, as soon as the patient is immersed therein, the diaphragm is put in place, the poles of the battery are attached, and the current is gradually increased by means of the rheostat until it is of the strength of two hundred milliampères. At the end of another fifteen minutes, the current is shut off, and the process is finished.

This method is remedial and not curative; it is used especially for syphilides.

RECTAL ADMINISTRATION.

Audry, in 1906, advocated the treatment of syphilis by

rectal medication. He used suppositories of gray oil prepared with cacao-butter, and each suppository contained two, three, or four centigrammes of metallic mercury. Other preparations of mercury were tried, but their effect was doubtful and gray oil alone was used. At first, two suppositories were used daily, but, as they caused pain in the rectum, only one was used per day. The suppository contained three c. grammes of mercury, and was well borne. The effect of this treatment was beneficial. It was only used as a remedial measure, and it was found to be as efficient as oral administration. The symptoms began to clear up after the fourth day.

This method has the advantage of being practical and also painless. It is also to be recommended where gastro-intestinal derangements are present, and in children. It is not a dirty or repulsive method, and the night can be utilized for the absorption of the suppositories.

Any rectal disorder, naturally, contraindicates the adoption of this method.

Up to the present, rectal medication has not been employed for curative purposes, as the treatment cannot be prolonged. Proctitis, tenesmus, pain on defaecation, and spasm may occur and demand the cessation of the treatment.

The advantage of this method of treatment is that it places at the disposal of the physician a new means of administering mercury - especially since it is efficient, simple, and harmless.

MASKS.

Krommayer (Practitioner, Sept., 1908) introduced masks of fine wire, covered with a double layer of molleton, impregnated with mercury in a state of fine division. Each mask contained two drachms of mercury and was worn at night. The method is easy, and good effects are often apparent within a week. The duration of the treatment is thirty days, and, during that time, the mask requires renewal two or three times. It has also been used as a remedial agent and has proved efficient, being better than inunction and slightly less powerful than injections.

MISCELLANEOUS METHODS.

Two other methods of administering mercury that need only be mentioned are wearing a bag containing mercurial ointment, and placing cotton-wool impregnated with mercury on the pillow. Their therapeutic action is practically nil.

I O D I D E S.

Although the iodides have been more largely used in medicine than any other salts of the alkalies, their MODE OF ACTION is still wrapped in obscurity. This is due to the unsatisfactory state of the pathology of the diseases in which they are used, and to the fact that their effects vary not only in different individuals, but also in the same person at different times.

Iodides have no external action. They do not irritate the skin, and they are absorbed from the unbroken skin in small quantities.

They have an internal action, but the exact nature of this is unknown.

Pouchet (Marshall.- Syphilology) says that they act by stimulating the lymphoid tissue, the process of disassimulation, and by an accessory action on respiration and circulation. They act by stimulating the means of defence, by provoking leucocytosis, and by their bactericidal action.

The iodides are not absorbed from watery solutions applied to the skin, but are rapidly taken up by all the mucous membranes. When given by the mouth, they are absorbed by the stomach and intestines, and appear in the secretions within a few minutes. The greater part of the iodide is excreted in the urine. Some of it escapes by the salivary glands, and it has been found in the tears, milk, and nasal secretion. The whole process of elimination is very rapid, and no iodide reaction is obtained from any of the secretions a week after the treatment has ceased. The greater part of the iodide administered therefore passes through the tissues, and is excreted in the urine in the

form of salts. The formation of free iodine from iodides is distinct from the dissociation of the iodides into ions, and has been variously explained. Some state that the iodine is decomposed by the carbonic acid of the blood, forming hydriodic acid, and that this is subsequently oxidised in the blood to free iodine. Others think that the decomposition occurs in the protoplasm of the tissues. The action of nitrites, which decompose potassium iodide in the presence of acids, has been attributed as the cause of the free iodine. There have been discovered microorganisms which are capable of setting iodine free from iodides in acid solution. The importance of the setting free of iodine is with regard to iodism, which free iodine is supposed to cause.

The central nervous system seems to be free from any effect of iodides, as does the circulatory system.

Therapeutical doses of iodides produce unknown effects.

TOXIC EFFECTS.

IODISM is produced when the patient takes more iodine than his system can tolerate. Large doses or long-continued administration are not required for its production. It may arise from comparatively small doses of iodides. The w r i t er has known three-grain doses of potassium iodide to occasion iodism in twenty-four hours.

The commonest symptom of iodism is catarrh of the respiratory passages, more especially of the nose, which betrays itself in some swelling and discomfort in the nasal mucous membrane, in a watery secretion of a profuse kind, and in sneezing. The symptoms resemble those of a common cold in most cases, but may simulate the most violent hay fever. The head feels "stopped up", and the eyes and nose run copiously. In a few cases the effects have been so severe as to simulate influenza.

In the case of the mouth, iodism causes a metallic taste, salivation, and irritation. The metallic taste is often one of the first signs of iodism, but is not so marked as that caused by mercury. There may be swelling of the salivary glands.

Nausea and indigestion are the most annoying features of iodism, but it is pleasing to know that they do not occur in

every case. There may be abdominal discomfort and a disgust for food, and in rare cases cramps, diarrhoea, and irremediable indigestion occur.

Skin eruptions are common results of iodism, but are less frequent than coryza and occur later than the latter. They may simulate any skin disease; acne, erythema, rupia, purpura, bullae, vesicles, pustules, and eczema are the commonest, and of these acne is the most frequently observed. Oedema of the face and ear passages has been recorded, but is rare.

Nervous lesions may result from iodism. Paralysis, tremors, neuralgia, and disorders of sensation occur in exceptional instances. Iodic nervous toxaemia is not unknown, and it may be acute or chronic. In the acute form, the patient is stupid, unable to take food, and perhaps unconscious; it is due to a short course of heroic treatment. The chronic form resembles syphilis of the nervous system and, if mistaken for it, may lead to the continuance of the iodide with disastrous results.

Cachexia, evidenced by loss of flesh, weakness, depression and restlessness, has occurred in some rare cases of prolonged iodism.

The <u>treatment</u> of iodism is the withdrawal of the iodide. As soon as this is done, there is rapid improvement. The cachexia, however, takes longer than the other symptoms to disappear. When the symptoms are slight, it is often found that increasing the amount of the iodide given relieves the patient and causes the symptoms to disappear. In some cases symptomatic treatment is required. The iodides all induce iodism, the symptoms being apparently unaffected by the basic ion; but the iodide of ammonium is said to be more liable to induce it than others, owing to the iodine being freed from it more easily. The symptoms are seldom dangerous, but they may cause alarm.

In addition to iodism, iodides cause other conditions when their use is prolonged. Atrophy of the testicles and breasts, diminished secretion of milk, and loss of weight have occurred.

<u>THERAPEUTIC APPLICATION</u>.

The iodides are used very extensively in the treatment of

tertiary syphilis, in which affection they have proved invaluable. They have also been administered in the earlier stages of the disease, but have proved useful only for the relief of certain symptoms. The indications for the use of the iodides are tertiary lesions, neuralgic secondary troubles, and cases in which the patient cannot take mercury in any form. They absorb nodes and gummata and relieve pain, but are not sufficient in themselves for the cure of syphilis. It is good to remember that iodides are not indispensable, but only accessory. Mercury acts on the organism and iodides on the toxin, is a good working hypothesis.

PREPARATIONS USED.

Of all the iodides and their substitutes, nothing can approach POTASSIUM IODIDE in efficiency. It is the strongest of the iodides, more poisonous than sodium iodide, and dissolves in an equal weight of water. The therapeutic dose is from five to twenty grains, but much larger doses than this can be given with safety (vide infra).

SODIUM IODIDE is not so strong as the potassium salt, is less poisonous, and requires twice its weight of water for its solution.

The iodides of AMMONIUM, STRONTIUM, CALCIUM, LITHIUM, and RUBIDIUM are not extensively used and, like sodium iodide, have a therapeutic dose of from five to twenty grains.

None of the other iodides is employed if potassium iodide can be borne, though it is useful to remember them as substitutes for the potassium salt.

The SYRUP OF HYDRIODIC ACID is too feeble for routine or or symptomatic treatment, and is of use only as a tonic.

The TINCTURE OF IODINE was formerly employed in the treatment of syphilis, but it is not used now, as it is too feeble and too irritating. Like iodoform, it is a preparation of iodine, and is a substitute for potassium iodide.

IODOFORM may be used as a pill when iodides are not tolerated.

IODINE itself, in half-grain doses, was used in syphilis at

one time, but it has been superseded by the iodides.

SUBSTITUTES FOR IODIDES.

Of late years, the number of substitutes for iodides has increased to an enormous extent. Each preparation is boomed for some time after its appearance, but soon gives way to the established superiority of iodides, and then is no more heard of. Some, however, are useful when the patient cannot take iodides, but none of them can replace the latter. Only a few require here to be mentioned.

SAJODIN is a colourless, tasteless powder, insoluble in water, said to contain about 25 per cent. of iodine, and to be non-poisonous. It is given in capsules, each containing from five to twenty grains.

IODALBIN is another proprietary preparation, which is a combination of iodine and a form of albumin. It is a dark-brown powder containing 21.5 per cent. of iodine, and is given in ten-grain doses three times a day. It is best given in capsules and followed by a demulcent drink. The w r i t e r has employed it, when iodides became intolerable, and found it very useful, but less efficient than the iodides.

IOTHION is for local application only, and from a half to a drachm is painted in the skin each day.

IODIPIN, containing 10 per cent. of iodine in oil; LIPIODOL; IODINOL; And IODOLEN are other substitutes that require merely to be mentioned.

CALCIUM-IODO-RICINOLEATE has recently been introduced; it contains 38 per cent. of iodine. It is given in three-grain doses in keratin-coated pills.

METHODS OF ADMINISTRATION.

Potassium iodide can be administered by the mouth or by the rectum; it is not very suitable for hypodermic medication. It is always given by the mouth, except when it cannot be swallowed, and then it is given per rectum or subcutaneously. To avoid iodism, the iodide should be given freely diluted with water; the amount of iodide required for each dose should be dissolved in one ounce of water, or other suitable liquid, and

should be followed by a drink of water. The importance of freely diluting the drug cannot be over-estimated, and too much impressed upon both physician and patient.

The taste of the iodides is rather unpleasant, and should be disguised as much as possible. Any syrup, - such as syrup of orange or of lemon, - coffee, milk, tea, and aërated waters are suitable for the purpose. It is a common practice of the w r i t e r to disguise the taste with syrup of lemon, and the practice answers very well. It is advisable to change the vehicle occasionally.

Dilute hydrochloric acid is sometimes added to the mixture to promote digestion, and the addition of ammonium carbonate, tincture of mux vomica, or compound spirits of ammonia is useful to counteract any depressing effect of the iodide.

Compound tincture of cinchona, sarsaparilla, and any of the bitter infusions stimulate digestion and so improve the patient's health.

Liquor arsenicalis prevents the appearance of iodine eruptions, and can be used with advantage; it is also useful in the presence of any anaemia.

The following are a few of the prescriptions used by the w r i t e r:

℞

Potass. iodid., gr. x.
Syrup. limon., ʒss.
Aq. ad ℥i.

℞

Potass. iodid., gr. x.
Liquor. arsenicalis, m. ii.
Syrup., ʒss.
Aq. ad ℥i.

℞

Potass. iodid., gr. v.
Ammon. carb., gr. iii.
Syrup., ʒss.
Aq. ad ℥i.

℞

Potass. iodid.,gr.v.

Tinct.nucis vom.,m.v.

Tinct.cinchon.co.,3ss.

Infus. calumb. ad ℥i.

Rectal administration is not efficient,and is seldom employed.When given per rectum,the iodide should be dissolved in peptonized milk.

As in the case of mercury,attention must be paid to the local and general hygiene of the patient and to the diet.

Any of the other iodides can be employed in the same manner as potassium iodide,while the proprietary substitutes are best given in capsules.

DOSAGE.

The importance of the dose is great.The susceptibility to iodides varies considerably,and while a single five-grain dose may cause iodism in one patient,another may stand thirty grains a day without any untoward result.It is best to begin with a moderate dose,and increase this as required.Five grains three times a day may be given at the beginning.The average amount required is thirty grains per diem.No fixed amount can be stated,as some lesions require an enormous amount to combat them.The iodide must be pushed until the lesion yields,even if three drachms are required daily.As a rule,coryza may be looked for consequent on the administration of ten to twenty-five grains thrice a day,and grave gastric disturbances from double that amount.

The patient should be instructed to take the drug about three hours after a meal.

The method of increasing the dose should be studied.It is a convenient plan to use the saturated solution of potassium iodide,one grain in one minim of water,and start with five minims of this solution three times a day.The dose is then increased one minim daily until fifteen minims are given at a time.When this has been attained,the dose is increased from three to five minims daily until the amount required is being taken.

DURATION OF TREATMENT.

The administration of moderate doses should not be continued for more than six weeks, and of large doses for over four weeks. If this course is not sufficient, a rest should be given for a week or so, and the treatment continued as before. During the period of rest, tonics should be given. The intermittent administration of iodides is essential.

Many physicians continue the exhibition of iodides with the mistaken idea that they prevent future manifestation of syphilis. This practice must be condemned, as iodides have not the power of preventing future manifestations, and mercury is the only drug that can do so. If iodides do not produce any effect after two courses of six weeks, mercury should be resorted to.

M I X E D T R E A T M E N T.

Some lesions react better to a combination of MERCURY and IODINE than to mercury or iodine alone. This is especially the case in late secondary lesions. The efficiency of the iodide is increased by the addition of mercury. After a course of iodides it is advisable to use mercury.

Mixed treatment may be administered in various ways.

It is common to mix the mercury and iodide, and to give it by the mouth. When potassium iodide and liquor hydrarg. perchlor. are mixed, the iodide of mercury is formed and dissolved in the excess of potassium iodide.

The w r i t e r has obtained uniformly satisfactory results from the following mixture:

R/

Potass. iodidi, gr. x.

Liq. hydrarg. perchlor., 3i.

Aq. ad ℥i.

M. Ft. mist.

Sig.- ℥i. t.d.s., 3 hrs. post cib., followed by a drink of water.

Some prefer to give the mercury and iodine separately. The

mercury may be administered by inunction or as a pill, and the iodide in a mixture.

ARSENIC.

Some of the less active preparations of arsenic, such as realgar and orpiment, have been known in therapeutics from very early times; but it is only within comparatively recent years that the pharmocological action of the drug has been worked out.

PHARMACOLOGY.

The unbroken skin is not affected by arsenic, unless when it is applied repeatedly or allowed to remain in contact with it for some time, when it may give rise to redness or pustules. It has no corrosive action, and its subcutaneous injection gives rise to no pain. When applied to raw surfaces, arsenic acts as a caustic. The local effects of arsenic on the skin are seen in those who work with the drug.

Arsenic is quickly absorbed into the blood, and is found especially in the polymorphs. In health it seems to have little action on the red blood-corpuscles and haemoglobin, but in disease the percentage of haemoglobin and number of red blood-corpuscles is influenced.

Stockman and Greig (Journal of Pathology, 1903) found that arsenic given to normal animals produced an activity of the bone-marrow, indicated by its increased vascularity, great number of red blood-corpuscles, and lessened fat cells.

The gastro-intestinal tract is irritated when arsenic is given to excess, but in therapeutic doses it acts as a stimulant, increases the appetite, and promotes digestion.

The action of arsenic on the circulation has been investigated by several authors, who have obtained discordant results. The heart is accelerated by small doses and slowed by large ones, and there is a fall of blood-pressure.

The intravenous injection of small doses of arsenic accelerates the respirations, but this effect is transient. In man arsenic only affects the respiratory organs in the late stages of poisoning, and then the effect may be due to exhaustion

and reduction of the blood-pressure.

The nervous system is unaffected when therapeutic doses are given, but poisonous doses produce various forms of paralysis.

Arsenic is excreted for the most part in the urine, to a much smaller extent in the alimentary tract. Traces are eliminated in the perspiration, hair, saliva, milk, and even the tears. It has also been found that arsenic can pass from the mother to the foetus. The excretion takes place slowly and has been found years after its administration. The drug is found in the largest quantity in the liver, in which organ it forms a combination with the nucleins; it is also deposited in the kidneys and spleen.

Binz and Schulz (Arch. f. exper. Path. u. Pharm.) suppose that ~~hold~~ that arsenious acid is oxidized to arsenic acid by the living tissues, and that the arsenic acid is again reduced to arsenious. They say that this alternate reduction and oxidation is the essential feature of the action of arsenic. This view, though ingenious, is open to question.

TOXIC SYMPTOMS.

The long-continued administration of arsenic may result in chronic arsenical poisoning. The first symptoms consist of langour, weakness, loss of appetite, occasional vomiting, and a sense of gastric discomfort. There may be abdominal pain and slight diarrhoea, but constipation is NOT infrequent. Later on, more serious and varied symptoms occur. Symptoms of coryza, with sneezing, hoarseness and coughing, from a catarrhal condition of the nasal mucous membrane and the laryngeal lining, appear. Skin eruptions occur; the epithelium is proliferated and thickened, and a papular or vesicular or erythematous rash may appear. The colour of the skin becomes darker, more especially in individuals of a dark complexion. This condition is known as "arsenic melanosis." In some cases symptoms of coryza appear before the alimentary tract is deranged.

The worst cases of poisoning are accompanied by nervous lesions and fatty degeneration of the viscera. Peripheral neuritis is the most common lesion and is generally, but not

invariably, symmetrical. Muscular atrophy, with diminished electrical excitability, rapidly supervenes. The extremities are more commonly affected than the trunk. Disturbances of sensation are not infrequent. Fatty degeneration of the viscera is due to the fact that arsenic lessens the oxidation of the tissues and causes fatty degeneration of the cells of the organs.

In very prolonged arsenical poisoning the patient may sink into an apathetic condition, or may become an epileptic.

The prolonged administration of arsenic, in quantities insufficient to produce poisoning, is reputed to have a beneficial effect on growth and nutrition. This assertion has not been conclusively proved.

Tolerance to arsenic is quite common, and is found to an enormous extent in Styria and Tyrol where the peasants can take huge doses without an untoward effect.

ADMINISTRATION OF ARSENIC IN SYPHILIS.

The administration of arsenic is by no means a new method of treatment, but of late years it has come very much to the front on account of the latest researches in connection with trypanosomiasis and syphilis. The value of arsenic in the treatment of syphilis was recognized by phsyicians at an early date; but it was not thoroughly appreciated, as toxic symptoms were soon produced.

About fifty years ago, Donovan recognized the fact that arsenic was valuable as an adjunct to mercury, and he introduced a solution of mercury and arsenic - liquor arsenici et hydrargyri iodidi - which is still called Donovan's solution. The dose of this solution is five to ten or twenty minims.

Pills, containing one-twelfth of a grain of arsenious iodide and a similar quantity of mercuric iodide, have also been employed in syphilis.

In more recent times, the pharmocological action of arsenic and its salts has been thoroughly worked out, and organic salts of arsenic have been introduced. The great interest of organic preparations lies in the fact that much larger doses of arsenic can be administered without producing toxic symptoms. The organic arsenical preparations of the

aromatic series are called ARYLARSONATES and first came into prominence about forty years ago, when Thomas, of Liverpool, used them with success in sleeping sickness.

The discovery that syphilis was due to the spironema pallida at once suggested the use of arsenic as a rational therapeutic agent in this disease. On the Continent, Uhlenuth, Lassar, Hallopeau, and Salmon adopted this treatment with a certain measure of success. Various toxic symptoms occurred and discouraged the treatment to some extent, but less toxic preparations, such as Soamin and arsacetin were introduced, and gave a fresh stimulus to the use of arsenic.

Arsenious acid was tried at first, but, in spite of large doses, it was found that it could neither prevent nor cure syphilis. The same applies to sodium cacodylate.

The preparations now used are atoxyl (mono-sodium-para-amino-phenyl-arsonate) and its modifications.

ATOXYL is being gradually replaced by other less toxic preparations, which are modifications of it. Much attention has been paid to the effect of these drugs in syphilis and on trypanosomes, which appear to have some connection with the spironema pallida. When animals with trypanosomes in their blood are injected with atoxyl, the trypanosomes disappear in twenty-four hours from the blood which is, however, infectious when injected into other animals, but after a time the trypanosomes reappear. When animals are injected, first with atoxyl and then with mercury, the trypanosomes permanently disappear from the blood, which no longer infects other animals. These experiments on animals were repeated in man, and it was found that when patients with trypanosomiasis were injected with atoxyl, the trypanosomes disappeared from the blood and then altogether, the patient recovering (Beddoes.- Syphilis).

Atoxyl was one of the first arylarsonates used, and it was found that it possessed a preventive action in syphilis in apes; it was not so good as mercury in primary and secondary syphilis, and it was better than mercury in tertiary and malignant syphilis. Scholts (Practitioner, Sept., 1908) says that

atoxyl holds a position between iodine and mercury, and that it acts only in the tertiary stage and in bad cases of syphilis.

A 10 per cent. solution of atoxyl in water is prepared and heated to 212. F. for two minutes, and no more, as the arsenic is liable to become dissociated and more toxic. The solution should be freshly made and not exposed to the light. Fifteen to twenty-five minims of this solution are injected every second day. Larger doses have been given, but have caused toxic symptoms. Six injections are given, and then mercury is used for three or four weeks; during the next three weeks nine injections are given. The treatment is continued until the last sign of syphilis disappears, and then mercury is given for at least two years. The arylarsonate causes recovery of health and strength, renders the patient better able to take mercury, and cures the symptoms.

As far as results go, it seems that atoxyl is not sufficient in itself to cure syphilis, but that it is a good tonic and remedial agent. The injections do not cause much pain.

Toxic symptoms are not uncommonly produced and, in the early stages, they consist of diarrhoea, nausea, and vomiting. Opium speedily relieves these. Later on, more severe symptoms - such as peripheral neuritis and paraplegia - may occur. The treatment of atoxyl poisoning is to stop all injections of it, and to have recourse to injections of mercury in a week's time. When the arsenical symptoms have completely disappeared, the atoxyl may be resumed.

Cases of blindness have resulted from the use of atoxyl, so that the physician is advised to give it with care or use a less toxic arylarsonate.

The prophylactic action of atoxyl on syphilis was shown by injecting apes. Five monkeys were inoculated with the same virus, and during the incubation period of the chancre two were injected with atoxyl. These two showed no symptoms of syphilis, while the other three developed the disease.

Burrough Wellcome & Co. have introduced three arylarsonates: Kharsin (sodium 3-methyl-4-amino-phenyl-arsonate) containing 25.7 per cent. of arsenic, Orsudan (sodium 3-methyl-4-acetyl-amino-phenyl-arsonate) containing 25.4 per cent. of arsenic,

and Soamin (sodium para-amino-phenyl-arsonate) containing 22.8 per cent. of arsenic. Soamin is the latest and best of them, and it has the formula $C_6 H_4 NH_2 AsO (OH) (ONa) 5H_2O$; in fact, it approximates very closely to atoxyl. It has the advantage that its purity can be assured. It was introduced in 1907, and it has been very extensively employed in this country for the treatment of syphilis. Its toxic symptoms are slight and transient, and its toxicity is less than one-fortieth that of arsenious acid.

It is a white crystalline powder, and soluble in five parts of water. The usual method of administration is by injection, but it can also be given by the mouth. Oral administration has its drawbacks, as Soamin may be decomposed in the stomach and give rise to toxic symptoms. Intramuscular or subcutaneous injections can be given, but the former plan is preferable.

The solution of soamin should be made with distilled water, and sterilized by five minutes' boiling. The initial dose should be five or six grains, and later on ten grains may be given. The full course is one hundred grains.

This treatment has an excellent remedial action, and can be recommended as such; but no authoritative statement can be made as to whether or not it is curative. Time alone can give the answer to this question.

Lambkin (Lancet, Dec. 5, 1908) has used Soamin with good results; he treated twenty-six cases, and only two showed bad effects. Both cases were over fifty, and that might account for them.

The manufacturers recommend that Soamin should not be given with mercury, not administered until fifteen days after mercurial treatment has ceased.

Arsacetin, or sodium acetyl-phenyl-arsonate, is a newer organic arsenical preparation than Soamin, and is manufactured in Germany where it is largely used. It is a white crystalline powder, soluble in ten parts of cold, and about three of warm, water; the solution is slightly acid in reaction. It is less toxic than atoxyl, and healthy and diseased animals tolerate

larger doses of it than of atoxyl. No decomposition occurs when it is kept for a long time, and boiling does not alter it. So far as one can judge, it is better than atoxyl.

Solutions of Arsacetin are extremely stable, can be heated to 130. C. in an autoclave without decomposition or liberation of arsenic, and are free from arsenious or arsenic acid.

The drug is employed in a 10 per cent. aqueous solution, either subcutaneously or intramuscularly, in combating syphilis, and the solution is sterilized before use by boiling.

On an average, twenty injections of ten grains twice a week are sufficient. It does not produce any serious toxic effects; and transient pains in the stomach and intestines, especially in women, and sudden and fugitive rises of temperature are all the unpleasant effects that have been noticed.

Arsacetin can be given with or immediately before or after mercury, and in this respect it has an advantage over Soamin. It can also be given orally, with advantage, in doses of a quarter of a grain three times a day.

Like Soamin, Arsacetin can be recommended only as a remedial agent, and as such it certainly deserves a trial.

Arylarsonates seem to be a second specific for syphilis, at least from a remedial and preventive point of view. Soamin and Arsacetin have been employed to advantage by the w r i t e r It possibly remains for the future to effect a cure of syphilis by arylarsonates; at present, mercury cannot be replaced by Arsacetin or Soamin in the cure of the disease, and they should therefore be used along with the same.

DIFFERENT METHODS OF TREATMENT.

Syphilis may be treated either for the relief of symptoms or for the cure of the disease. It is an unfortunate fact that most of the cases seen in union infirmaries desire only symptomatic treatment. It seems useless to show the patient that a prolonged course of treatment is necessary; many a talk has the w r i t e r had with patients, trying to impress upon them the fact that the disappearance of their symptoms

by no means implies an actual cure.They do not believe such assertions,or they take no heed;all that they desire is relief of their present condition.

In this way the w r i t e r has had great experience of the symptomatic treatment,and very little of curative treatment.The duration of symptomatic treatment varies with the lesion present and lasts until the active symptoms disappear.The administration of mercury in any form,of iodides by the mouth,and of arsenic by injection or oral administration are the means employed with successful results.

The curative treatment may be carried out by the continuous or intermittent method,preferably the latter.

The continuous method of treatment is the administration of mercury for two years without interruption,unless toxic symptoms appear.

The intermittent method was introduced by that eminent syphilologist, Fournier,and consists in the administration of mercury in successive courses,with intervals of rest,for several years.The aim of this treatment is to prevent the development of tertiary syphilis.It is the best method of treating syphilis,and it has the warm approval of those best entitled to judge.The principles of the treatment are as follows:

Mercury is given,by any of the above-mentioned methods, for six months;then follows a period of rest,which is succeeded by the administration of mercury until the end of the second year.The mercury is given in courses with periods of rest.During the third year the same lines are adopted,then until the seventh year mercury is given at intervals,with of potassium iodide as necessary.

The first six months are utilized by treating vigorously until active symptoms disappear,when the treatment becomes less energetic.Injections of gray oil twice a week,inunction of mercury daily,or hydrarg.cum creta three times a day usually suffice for the disappearance of active lesions;then weekly injections of gray oil may be given for the remainder of the

six months, in courses of six weeks with two weeks of rest, or gray powder may be used twice a day in the same courses.

A month's rest may then be given, and succeeded by courses of mercurial treatment, with intervals of rest, until the end of the second year. The same process occurs again and lasts for another year. The fourth and sixth years are passed should no symptoms be observed, and during the fifth and seventh years mercury is again given as before.

The above is a course of treatment recommended by syphilologists as an efficient and proper method of treating syphilis by means of mercury.

The recent introduction of arylarsonates may modify the course of treatment of syphilis to a great extent, but this is for the future to decide.

LOCAL TREATMENT.

CHANCRE.

The chancre has a spontaneous tendency to heal, and little treatment is therefore necessary in most cases. Cleanliness and freedom from irritation are the essential points. Excision of an indurated sore and the application of caustics are not to be recommended, as they are not productive of any good and may set up inflammation. Mercury should be given as soon as the diagnosis is made, and under its influence the induration softens and disappears.

If there is no ulceration, the sore should be washed daily with warm water and some mild antiseptic, such as boracic acid. No strong antiseptic should be used, as it may easily set up irritation. A dusting-powder, such as chalk, zinc oxide, starch, or a mixture of these, is very useful; calomel cream, consisting of a 10 per cent. mixture of calomel with vaseline and lanolin in equal quantities, may be applied.

Ulceration demands a stronger antiseptic solution than the above, and a one in two thousand solution of perchloride of mercury, or a black wash, will be found sufficient in most

cases. A wet boracic dressing will prevent irritation and assist cleanliness.

The occurrence of inflammation may be combated by the use of boracic or carbolic (1 : 200) dressings. The w r i t e r has found carbolic dressings very useful after the use of hydrogen peroxide.

When a chancroid complicates the chancre, treatment is confined to it and consists in the application of pure carbolic acid, followed by dusting with iodoform powder.

The presence of phagedena is serious, and careful treatment is necessary. Caustics are not to be used, and the best results are obtained from tepid antiseptic baths, prolonged for hours if necessary, three times a day. If the case is a severe one, the patient may practically spend his time in a hot sitz bath. After the bath, the part is carefully dried and dusted with iodoform, and a dressing of boracic wool is applied.

When the chancre is concealed and phimosis is present, irrigation with perchloride of mercury (1 : 2000), by means of a catheter under the prepuce and a dish containing the solution raised four or five feet above the patient and attached to the catheter by means of rubber tubing, will be required. It is sometimes necessary to have recourse to circumcision in these cases.

Paraphimosis may be present, and is usually reduced by the application of heat, free dilatation, and elevation of the penis. Keeping the part dry, and covering the glans with a solut- a solution containing equal parts of a 10 per cent. solution of cocaine and a 1 in 1000 solution of adrenalin, may help reduction in some cases. If these measures fail, constricting bands must be incised, so that sloughing may be prevented.

A few words may here be offered regarding IODOFORM and its substitutes.

Iodoform is a preparation of iodine and is a yellow, crystalline, insoluble powder with a disagreeable odour. It is readily decomposed in the presence of alkaline fluids and in proteid solutions, and some decomposition takes place in wounds. Some of the iodoform in wounds is absorbed unchanged,

and, circulating in the blood as such, may cause cerebral symptoms. Iodoform poisoning is by no means rare, and occurs more frequently in adults than children. The symptoms resemble those of alcoholic poisoning, and generally set in with anxiety, depression, and discomfort. Restlessness, sleeplessness, giddiness, headache, and cerebral symptoms soon supervene. The characteristic cerebral symptoms are mania and delirium, but stupour and collapse may set in without any symptoms of cerebral excitement. Death has not uncommonly resulted and fatty degeneration of the liver, kidney, heart, and muscles has been found on post-mortem examination.

The nature of the action of iodoform is unknown, and various theories have been brought forward to account for it. It may be due to the iodide which it forms.

The disagreeable odour of iodoform and the number of cases of poisoning due to it have led to the introduction of innumerable SUBSTITUTES. The first of these was IODOL, which is tasteless and odourless, but toxic. It has, however, been replaced by newer preparations, such as ARISTOL, SOZOIODOLATE OF POTASSIUM, SODIUM, MERCURY, and ZINC, as well as LOSOPHAN, ORTHOFORM, EUROPHEN, and NOSOPHEN. The number is legion, and each new one is supposed to be better than its predecessor. Most of them have not the disagreeable odour of iodoform, and are less toxic; but their efficiency is less. Not one of them can approach iodoform in reliability. Their use is therefore to be excluded if iodoform can possibly be employed.

The number of ANTISEPTICS that can be employed for washing chancres has been much increased during the last few years; and, in addition to BLACK WASH, LEAD LOTION, AND SALTS OF MERCURY, we now have CYLLIN, IZAL, PROTARGOL, ARGYROL, LYSOL, and countless other proprietary preparations. Most of them are very efficient, but as good results have been obtained by the w r i t e r from pharmocopoeal preparations, and there seems to him no necessity for despising officinal medicaments in this disease.

ADENITIS.

Syphilitic adenitis requires no local treatment; but, if

secondary infection occurs, the preventive and curative measures employed in the treatment of inflammation and suppuration may be taken advantage of.

CONDYLOMATA.

Condylomata disappear in a few weeks under the influence of mercury, unless any irritation exists and prevents their speedy cure.

Cleanliness is essential in all cases of syphilis of the skin and mucous membranes, and it is especially so in condylomata. The lesion should be washed freely with any of the antiseptics mentioned above, dried with some material that can be destroyed after use, and dusted with calomel powder. If the condylomata are exuberant, the application of silver nitrate, or other caustic, is necessary, and the use of iodoform is beneficial.

Burroughs Wellcome & Co. have introduced calcium iodoricinolate, which, according to them, is useful for condylomata and other syphilitic manifestations.

FEMALE GENITALS.

PRIMARY and SECONDARY SYPHILIS of the female genital organs will require the same treatment as in the male. TERTIARY LESIONS of the external genitals do not differ in this respect. Lesions of the uterus, ovaries, and Fallopian tubes require general treatment.

CUTANEOUS SYPHILIDES.

The treatment of cutaneous syphilides may involve the application of local remedies in addition to the general treatment for syphilis. The administration of arsenic, as described above, and the application of mercury, by means of fumigation and electrical baths, will be found very useful. If mercury is being administered by inunction, it is advisable to choose the places where the syphilide is present as the site of the rubbing. Hot baths, without any mercury in them, are not without value, especially for crusts and small ulcers.

The local application of mercury to the eruption is

beneficial and can be recommended by the w r i t e r, who uses the ungt.hydrarg.ammon.extensively.Calomel cream,such as is used for chancres,is also an excellent preparation.

ERYTHEMATOUS SYPHILIDE generally disappears without local treatment,but the majority of the others require some attention. SYPHILITIC PSORIASIS is often a very stubborn eruption,and not infrequently requires ichthyol or coal tar preparations to combat it.Vapour baths are of special value when there is a PAPULAR ERUPTION.

ULCERATING SYPHILIDES require dressing with lint and yellow oxide of mercury ointment or dusting with iodoform powder.A 1 per cent.ointment of iodine,or a mixture of glycerin. acid.borici,gylc.amyl,and iodoform (respectively 1, 2, and 1 parts)made up with 2 parts of charcoal,is often useful for syphilitic ulcers.

Boisseau (Medical Annual) recommends the injection of a 3 per cent.solution of potassium iodide into the ceulluar tissue surrounding subcutaneous gummata.He adds guaiacyl calcium to the solution,which he also advises us to use for syphilides that resist treatment.The guaiacyl calcium renders the injection painless.

Besnier and Crocker (Medical Annual,1908) say that the iodide should be injected into the gumma; subcutaneous gummata should never be incised.

TERTIARY ULCERATION may be treated with local spplications of calomel powder,or an ointment made with iodine and potassium iodide,and having a basis of lanolin and vaseline.When situated on the leg,syphilitic ulcers often heal rapidly under the influence of calcium iodide.

PHAGEDENA is best treated with iodoform and strict attention to hygiene.Iodoform is the most convenient,least painful,and most efficient agent.

Robinson (Medical Record,June,1907) recommends piloearpine in cases of stubborn cutaneous syphilides which resist mercury. He advises its use for three or four days,giving about an eighth of a grain daily.

ALOPECIA.

The hair should be cut short and washed thoroughly with soap and water every night. An application of ointment of mercury each night, or a stimulating lotion containing cantharides, is often useful. Many cases require no special treatment, but a few do. The administration of mercury usually suffices for its disappearance.

ONYCHIA AND PARONYCHIA.

A soothing ointment and a finger-stall are often all that will be required, but some cases require compresses of the perchloride of mercury (1 in 1000). If the granulations are exuberant, the application of silver nitrate usually stops the excess.

ORAL LESIONS.

The SECONDARY SYPHILIDES do not succomb to mercury alone, and therefore require local treatment in addition. Mucous patches and ulcers should be cauterized. Chromic acid, silver nitrate, acid nitrate of mercury, or zinc chloride may be used. Chromic acid may be used in the strength of from fifteen to thirty grains to the ounce, silver nitrate as a 10 per cent. solution or as a solid stick, and zinc chloride as a 5 per cent. solution. Tincture of iodine or hydrogen peroxide may be preferred by some, and may suffice. A 5 per cent. solution of chromic acid may be used first, and succeeded by a 2½ per cent. solution of silver nitrate; this results in the formation of chromate of silver.

Alcohol, tobacco, and kissing must be avoided, and a gargle used frequently. Borax, potassium chlorate, alum, black wash, or chlorine-water may be used as a gargle; potassium chlorate has been used with advantage by the w r i t e r. Hygiene and diet are of special importance.

LEUCOPLAKIA requires the same treatment as other syphilitic lesions of the buccal cavity, but caustics must be used with care, and hygienic precautions must be strictly observed.

Whenever CANCER appears, excision must be resorted to

Calomel often acts exceedingly well in oral syphilis, and is worth a trial. It should be given hypodermically, but may be applied locally.

TERTIARY LESIONS require the same treatment as described for the secondary ones.

The INTERNAL TREATMENT in oral syphilis is the same as for syphilis in general, but chlorate of potash may be given with potassium iodide, in both secondary and tertiary lesions, with excellent results. The following is a good prescription:

R/

Potass. iodid., gr.x.
Potass. chlorat., gr.v.
Syrup., 3i.
Aq. ad ℥i.
M. Ft. mist.
Sig.- One ounce four times a day.

NASAL LESIONS.

CRUSTS and DISCHARGES should be removed by irrigation or swabs; packing the nose with gauze checks the formation of scabs and keeps the nose clean. The application of antiseptics by means of sprays is very beneficial, especially when there is ULCERATION. Potassium chlorate, sodium chloride, hydrogen peroxide, potassium carbonate, or mercurial preparations are the best drugs for irrigation and spraying. Ulcers may require the application of silver nitrate or the insufflation of iodoform. Dead bone should be reomved.

PHARYNGEAL LESIONS.

The mouth and pharynx should be washed out with any of the gargles mentioned above. ULCERS should be treated with care, as carelessness might have serious results. All strong caustics must be avoided, and insufflation with calomel or iodoform effected. When PERFORATION of the soft palate occurs, the use of an obturator is called for. The obturator is only necessary when caustics fail to promote healing.

LARYNGEAL LESIONS.

Local applications of copper sulphate solution (fifteen grains to the ounce), silver nitrate solution (10 grains to the ounce), chromic acid solution (10 to 15 grains to the ounce), or iodoform are useful for ULCERATION IN THE SECONDARY STAGE. TERTIARY ULCERATION is best treated by insufflation of calomel. Some advise the use of strong caustics, but such must be used with extreme caution, as the dangers of permanent damage are great. Any STENOSIS OF THE LARYNX resulting from cicatrices is best overcome by slow and gradual dilatation. OEDEMA OF THE LARYNX occurs occasionally, and must be treated by free scarification, if possible, and by tracheotomy or laryngotomy, if impossible. Tracheotomy is preferable to laryngotomy.

RECTAL SYPHILIS.

Suppositories of gray oil should be tried in syphilis of the rectum, as should enemata of weak boracic acid. When STRICTURE results, surgical measures must be employed. The stricture may be dilated with rectal bougies, or divided and then dilated. If these means fail, an operation is necessary. Kraske's operation is the usual one, but it may be avoided by performing an inguinal colotomy first, and then MODIFIED ~~removing~~ the strictured bowel.

TESTICULAR SYPHILIS.

The testicle should be treated with Scott's dressing and elevated. Operative measures are rarely called for, as this treatment, along with internal medication, is usually sufficient - at least this has been the experience of the w r i t e r.

ARTICULAR LESIONS.

Of secondary symptoms, ARTHRITIS is the one which is the most benefited by the iodides, which are best given along with mercury. Warm baths relieve the pain. Scott's dressing is a useful and beneficial application; it is sometimes applied to joints which are syphilitic, but are diagnosed rheumatic or tuberculous, and acts like magic.

SYNOVITIS is cured by antisyphilitic treatment, but skilfully-applied massage is often of great additional value.

Gummatous synovitis disappears when Scott's dressing is applied to the joint and iodides given internally.

The result of treatment in advanced cases of arthritis is often unsatisfactory, but every possible method of giving anti-syphilitic treatment must be taken advantage of if the patient is to be relieved at all.

OSSEOUS LESIONS.

Potassium iodide is the drug par excellence for syphilitic lesions of bones. Large doses must be given, if no improvement results from small ones. A broken-down gumma should never be incised, except as a last resort lest the incision delays resolution. No drug treatment influences sclerosed bone and, if nodes of sclerosed bone are present and troublesome operative treatment must be resorted to. In the Leeds Union Infirmary removal of sclerosed bone from the tibia is occasionally done; the prominent bone is gradually removed by means of a mallet and a chisel or an osteotome. Good results are obtained.

ALIMENTARY LESIONS.

Syphilis of the alimentary tract is rare, apart from affections of the MOUTH and RECTUM. The w r i t e r has found iodides useful in the only case of gastric syphilis he has diagnosed; a course of iodides caused the disappearance of the lesion, and a subsequent course of mercury prevented its recurrence.

The diet of GASTRIC syphilis must be regulated in the same way as it is in other gastric conditions. Rest in bed is often beneficial.

All obscure gastric conditions should be given antisyphilitic treatment in the hope that they may be relieved thereby.

INTESTINAL SYPHILIS must be treated in the same way as syphilis of the stomach.

OCULAR LESIONS.

IRITIS.

The local treatment of iritis is important, and too

much care cannot be exercised. Hot compresses should be applied every two or four hours, according to the severity of the case, and free action of the bowels secured. Before using any local drugs, the tension of the eye must be tested. If it is normal or diminished, atropine drops (1 or 2 grains to the ounce) should be used every four hours until the pupil is dilated. Atropine acts as a splint; it relieves pain to some extent, puts the iris at rest, dilates the pupil, hinders the formation of synechiae, and ruptures synechiae already formed. After the pupil has been dilated, only enough to maintain dilatation is used. If there is much pain, leeches should be applied to the temple.

If the intraocular tension is increased, atropine is contra-indicated, and should be replaced by eserine.

Paracentesis of the cornea, or even iridectomy, may be required if the tension is not relieved by eserine.

Photophobia is relieved by smoked glasses or a well-ventilated and darkened room. Sometimes atropine increases the conjunctivitis and should be replaced by duboisin or hyoscyamin.

CYCLITIS.

The treatment for cyclitis is the same as for iritis.

CHOROIDITIS and RETINITIS.

Energetic treatment is required. Atropine drops, leeches to the temples, warm compresses to the eye, and protection from light are demanded, as for iritis. Jaborandi (fifteen minims of the liquid extract) and pilocarpine nitrate (a twelfth to a sixth of a grain) are the special drugs required, while rest in bed is essential. One of these drugs is employed every second or third day to promote sweating. When the sweating ceases a hot bath should be given.

OPTIC NEURITIS AND ATROPHY.

Optic neuritis can only be benefited when early and energetic treatment has been given; no treatment has any effect on optic atrophy.

All OTHER OCULAR LESIONS require energetic antisyphilitic medication.

Ocular syphilis of any kind demands the most exacting treatment. All drugs used must act as quickly as possible; hence injections are most useful, especially soluble injections. If treatment is begun early, satisfactory results are obtained. Subconjunctival injections of mercury (3 drops of a 1 in 1000 solution of corrosive sublimate every three or four days) have been recommended; they are painful, and it is advisable to use cocaine beforehand. In addition to its intensity, the treatment must be prolonged to prevent the possibility of other eye or nerve trouble.

Iodides have little effect, unless gummata are present, and should be associated with mercury.

AURAL LESIONS.

As in the case of ocular syphilis, energetic treatment is required for syphilis of the ear, and injections of mercury are beneficial. The injection of mercury may not cure, but it often arrests the deafness. Aural surgeons use pilocarpine to induce sweating, and they claim for the drug fairly good results where mercury and the iodides have failed.

Secondary and tertiary lesions of the EXTERNAL EAR must be combated by cleanliness, keeping the parts dry, and the use of dusting-powders. It is important to keep the passage open, as stenosis or occlusion of the meatus may result from ulceration.

LIVER AND SPLEEN.

SECONDARY LESIONS of the liver and spleen succomb to anti-syphilitic treatment, which also prevents the appearance of tertiary affections when properly carried out. When TERTIARY LESIONS do occur, the administration of the iodides is necessary, as it is for all other manifestations of the tertiary disease.

KIDNEY.

Antisyphilitic treatment should be supplemented by the usual nephritic treatment, which consists in attention to diet, regulation of the bowels, rest in bed, and attention to diuresis and diaphoresis. In SECONDARY SYPHILIS, when there is no destructive lesion, the regimen for acute nephritis must be

strictly observed, as any laxity in this direction may result in chronic nephritis. TERTIARY SYPHILIS of the kidney requires the same measures as chronic Bright's disease; no strict attention to diet is absolutely necessary. The patient should be allowed a certain degree of freedom in the choice of foods.

The amount of urea should be measured frequently, as a fall in urea contraindicates the exhibition of mercury.

The antisyphilitic treatment should be energetically carried out; some recommend injections of mercury as being the most efficient method of administering the drug in this disease.

PANCREAS.

Pancreatic syphilis is rare, and it is practically never diagnosed during life. When recognised, the general treatment for syphilis must be instituted.

HEART.

The diagnosis of cardiac syphilis is usually based upon probabilities and not on certainties, so that vigorous antisyphilitic treatment is not called for. Mercury should be administered by injection, and the iodides should be given internally. The w r i t e r has found iodide of sodium very useful and prefers it to the other iodides. The diet should be light and digestible; any foods that cause flatulence should be avoided, as sudden distension of the stomach may prove disastrous to an already weakened heart. Rest in bed and the avoidance of mental and physical exertion are valuable measures, and fully repay their employment. Cardiac tonics, such as digitalis and nux vomica are called for when the action of the heart is weak. The w r i t e r practically never gives strychnine by the mouth, as he thinks that nux vomica is much better; strychnine, to be of any use, must be given hypodermically.

Mercury is useful when given in the form of gray oil, and the dose of sodium iodide should be gradually increased.

Alcohol should be avoided, as it throws extra exertion on the weakened heart. Regulation of the bowels should be secured by means of a saline every morning.

If one can be sure of the diagnosis, energetic treatment is

called for, and is often beneficial; two years of treatment by means of mercurial injections and internal administration of sodium iodide are necessary.

ANGINA PECTORIS is so often syphilitic in origin that energetic antisyphilitic treatment should be tried in such cases. The use of the nitries is limited to the relief of the attacks. Attention to the digestion and diet is especially valuable in cases of angina pectoris.

ARTERITIS AND ANEURYSM.

Arteritis and aneurysm due to syphilis cannot be better treated than by gradually increasing doses of potassium iodide. Three drachms of the iodide may be given if necessary. The accessory treatment of aneurysm in syphilis is the same as for aneurysm due to any other cause.

LUNGS.

Pulmonary syphilis is often present with tuberculosis, and antisyphilitic treatment must be given in addition to the treatment for phthisis. It has been found that mercury is beneficial, rather than otherwise, to tuberculous patients. The iodides can be added to the mercury with advantage, as they enable the patient to tolerate the mercury better; but, as curative agents, they are not of much value.

When pulmonary syphilis is untreated, it usually ends fatally from secondary conditions, such as haemoptysis. Early mercurial treatment usually clears up the condition.

BRONCHI.

Syphilitic lesions of the bronchi are usually associated with pulmonary syphilis, and will require the same treatment.

NERVOUS SYSTEM.

Before treating any cerebral or spinal condition due to syphilis, one must consider whether the lesion is curable or not. Syphilitic lesions, per se, are eminently curable, but the secondary results are incurable. Thus, a gumma is easily cured, while sclerosis is incurable. No amount of drugs can remove a

patch of sclerosis, restore a softened area of the brain, or occasion a return of the function to a thrombosed vessel. To give satisfactory results, treatment must be instituted early; but, unfortunately, this is not always possible, as the disease is often beyond control before advice is sought. The premonitory symptoms, which are of frequent occurrence, indicate the time for beneficial treatment; if these symptoms were more fully appreciated, nervous syphilitic lesions would be less common.

The aim of the general treatment of syphilis is to cure, and thus prevent the appearance of nervous symptoms; early treatment of syphilis of the nervous system usually prevents the development of lesions; treatment instituted at a late stage does not cure, but only arrests the process.

The treatment of syphilis of the nervous system must be brief, intense, and renewed. No course of treatment should last more than two months, and the interval of rest should be from six to twelve weeks. The treatment consists of intramuscular injection of mercury and the administration of potassium iodide. Mercury should be administered with intervals of rest for two years after all symptoms have disappeared, and for a few months each year for nine or ten years, so as to avoid any risk of parasyphilitic lesions.

Hydrotherapy is a useful adjunct in the treatment of syphilis of the nervous system.

--------L I S T O F C A S E S.--------

In addition to the fourteen cases described in the general text, a short resumé of fifty-four additional personal observations is now given, making sixty-eight in all.

It will be noticed that most of the patients concerned took their discharge as soon as their symptoms were relieved. That is the difficulty one has to contend with in poor-law hospital service. The cases that remain in the infirmary are those which cannot be cured.

The cases about to be described include all kinds of syphilitic manifestations.

Practically every case has an undoubted history of syphilis, while those in which such a history is not definite it is more than probable.

CASE 1.

TERTIARY SYPHILIS: DELUSIONAL INSANITY.

J. C., aged 56, was admitted to the Leeds Union Infirmary on April 1, 1907. He had been a shoe-rivetter and had made his living for some time past by giving exhibitions of boxing with a travelling booth.

He said that he had not been married, and had syphilis when 28 years of age. He had an ulcerated leg for twenty years.

About March, 1906, he became dizzy and sick. From his statements it appeared that he has spent much time in public-houses. On the day before his admission to the Union Infirmary, he became dizzy and sick whilst partaking of twopennyworth of whisky, and all his limbs began to twitch. The jumping spasms recurred, he said, if he attempted to walk.

He stated that he had had considerable headache, chiefly in the occipital region.

The condition of the tongue was characteristic of syphilis.

The left leg was ulcerated and showed cicatrices.

A soft systolic bruit was audible at the apex of the heart.

Cicatrices appeared in each groin.

He had had delusions about a man "putting stuff in his drink" and "setting other men on to him to accomplish his destruction".

He was removed to an asylum a few days after admission.

CASE 2.

VERTIGO.

J. C., was admitted to the Leeds Union Infirmary, on November 4, 1907, complaining of dizziness.

He had been a labourer in a forge and had not been married.

He had syphilis at the age of 30, and for this took some pills for two or three months. Sixteen years later he had a sore on the left knee, which lasted for six or eight months.

He had not been temperate in his consumption of alcohol.

His nose had been struck and injured by the handle of a crane about twelve or fourteen years before coming to our Infirmary.

For two years he had been dizzy, and now and then he fallen to the ground.

His sight was defective, but it was considerably improved by wearing spectacles. He had no cough; his appetite was good, and his bowels were regular. Micturition was frequent - five or six times in the night, which he thought was too much.

Specific sores appeared in the left thigh and knee. The knee-jerks were brisk.

Cardiac dulness was increased over the manubrium sterni, and the heart's sounds were feeble.

There were no syphilitic scars of lesions about the genitals.

On November 16th, examination of the eyes showed inequality of the pupils, the right one being very much contracted and irresponsive to both light and accomodation. He was still unable to stand without support.

On the 17th, the knee-jerks were still brisk. On the 20th of November the dizziness still continued. The bowels were constipated, but his ability to eat and sleep were unimpaired.

On December 16, foetor of the breath was noticed. He said that the bone had been removed from his nose two years before admission.

He was discharged on December 23rd, "better".

This patient was treated with the following mixture:

R/

Sodii iodid., gr. x.

Acid. hydrobrom. dil., 3i.

Aq. ad ℥i.

M. Ft. mist.

Sig.- ℥i. t. d. s. ex aq.

CASE 3.

AORTIC INCOMPETENCE, ETC.

J. C., was admitted to the Leeds Union Infirmary, on November 4, 1907, complaining of cough and shortness of breath on exertion. He was not able to walk many paces at a time.

He had worked as a labourer, was married, but lived apart from his wife for twelve years. He had suffered from bronchitis.

He had syphilis about 1890, and had undergone an operation in this Infirmary. Thirteen years later he was again here with heart trouble and swelling of the legs. He was in the habit of drinking "a little."

The above-mentioned illness had begun about five or six weeks prior to his admission. He had a cough followed by expectoration. The cough was worst in bad weather. He had had a "winter cough" for some years.

He did not complain of headache, but his eyesight was defective. He walked with a limp. He experienced no difficulty of breathing when at rest, and there was no pain in the chest. The appetite was good, the tongue clean and normal, and the bowels regular. He passed urine two or three times during the night.

Oedema appeared in the lower limbs, and the pulsation of the arteries was evident on the body. The movement of the chest

was fair. A few râles were heard in the lungs. Cardiac dulness was increased, and an aortic, ventricular, diastolic murmur was audible. The first sound was soft, and the pulse was collapsible. The right groin showed a cicatrix.

On December 18th, the oedema had disappeared. There was no pain in the chest. Bruit was heard with the second sound of the heart over the aortic cartilage, and there was a bruit with each sound at the apex. The sputum was frothy and mucous.

On December 27th, bruit was heard with the second sound at the apex, and with both sounds at the base. He felt dizzy, dull, and experienced a sensation of fulness in the forehead.

On January 6th, bruit was heard with each sound at the apex and base.

On February 3rd, the patient complained of pain in the left side. There was increased dulness over the sternum, which extended to the nipple line. A little blood had been seen in his sputum. The cardiac sounds were as before recorded.

This patient was treated with a mixture containing sodium iodide and digitalis:

R/

Sodii iodid., gr.v. *

Tinct. digitalis, m.v.

Mist. tuss. alk. ad ℥i.

M. Ft. mist.

Sig.- ℥i 4 hrs.

CASE 4.

TERTIARY SYPHILIS - PARALYSIS.

J. B., aged 59, was admitted to the Leeds Union Infirmary, on November 8, 1907, complaining of trembling and weakness of the limbs.

He had been married and lived with his wife five years. Five children had been born, of whom three died in infancy.

His nose was "bad" about 1895. He had stricture in 1904 and instruments were used eight times, but this had not occurred during the past two years. He had syphilis about 1887, and

about 1900 began to have tremblings in limbs.

The nasal cartilages were deficient - an effect of syphilis. The tongue was smooth and large. There was tremor of the upper limbs and weakness of the lower. The right groin showed a cicatrixHe said he was treated for two years by Mr. Jessop.

On November 10th, he complained of dizziness, and stated that he had been very deaf six months after a period of giddiness.

THe was discharged nf November 16th, 1907, after having improved under a course of potassium iodide and mercury. He received the following:

R/

Pil. hydrarg. c. creta, gr.i.

One t.d.

R/

Potass. iodid., gr.v.

Spirit. ammon. co., m.x.

Syrup., m.xxx.

Infus. calumb. ad ℥i.

M. Ft. mist.

Sig.- ℥i. 4 hrs.

CASE 5.

C. E. M., aged 43, was admitted to the Leeds Union Infirmary, on November 22, 1907, complaining of pain in the hips and thighs.

He had worked as a clerk, had been married nine years, and had issue one child, which, with the mother, was healthy. There had been no mischarriages.

He had syphilis about fourteen years prior to admission, and was treated for it three years. The eye was excised in Edinburgh.

He had been in the army twenty-one years, eleven of which were spent in India. He had been in the Salvation Army two years and a half, and had been intemperate eleven years. (It is to be presimed that these periods did not run concurrently.)

His wife said that he began to drink in the regular army after having been promoted to the rank of sergeant. The illnes of which he complained began about six months before. In addition to the pains already mentioned, he found that, if he shut his eyes in the dark, he was not able to stand upright.

His remaining eye was found to react sluggishly. Nervous sensation was diminished. He complained of dizziness and was not able to button his shirt. No record was made of difficulty in breathing or of a cough. His tongue was clean, but massive, and bowels were regular.

His grasp was weak, and the hands showed incoordination for fine movements. In the lower limbs the knee-jerk was sluggish, and there was loss of tactile sensation in parts. Babinsky's sign was present. The heart's sounds were weak. The left groin bore a cicatrix.

On November 25th, the knee-jerks were present. On December 2nd, they were more brisk than on admission. He had considerable pain in the leg. On February 2nd, he stated that pains recurred in both legs at times; but he had no urinary troubles, no headache, and no sickness. His condition was really unchanged.

As in the case of other tabetics, this patient has not improved to any extent and requires antifebrin for the pains.

CASE 6.

LOCOMOTOR ATAXIA.

W. G., aged 38, was admitted to the Leeds Union Infirmary, on December 18, 1907, complaining of loss of power in his legs.

He had been a machinist, and had never married.

He had syphilis about 1887, and had been in the habit of taking "some drink". He was in this Infirmary in 1897 with the same disease. He was sent to the Wakefield ~~Union~~ ASYLUM in April, 1907, with symptoms of mental unsoundness and has just returned.

The pupils of the eyes were unequal. Both would react to accomodation, and the right to light, but not the left. The

pupil of the right eye was dilated.He was unable to walk or stand,having no power in his legs.The ground felt soft under his feet.

His breathing was easy,and there was no pain in the chest. There was a slight cough unaccompanied by sputum.
He could eat fairly well;the tongue was tremulous and clean, and the bowels were regular. At times there was slight incontinence of urine,and at other times he was obliged to force it; but there was no pain.He passed urine nearly every night.The quantity varied.

From the lower limbs the knee-jerks were absent.

The body was not well nourished;and there was erythema on the chest,which was flat in shape and easy of movement.Auscultation of the lungs yielded nothing worthy of note,and the heart's sounds were good.Examination of the abdominal and genito-urinary regions showed nothing abnormal.

On January 3rd,1908, the incontinence of urine had ceased, but there was no other change.

Fourteen days later the patient was feeling better, but pains of short duration would recur at times. His condition had not materially altered.

The patient is still in the Infirmary,and has shown no signs of improving. Antifebrin for pains is the only medicinal treatment he receives.

CASE 7.

SYPHILITIC RECTAL STRICTURE:

COLOTOMY.

G. N.,aged 24, was admitted to the Leeds Union Infirmary, on January 22,1908.

He was a collier. Both his parents were dead,and two step-sisters were living.

He had fistula in ano and tuberculous proctitis two years before admission.When aged 18,he was in the navy and had syphilis. For two subsequent years he was treated with mercury. In 1906 he had pneumonia.

Six months before admission,he began to have a white

discharge from the rectum. The bowels were constipated and gave pain on evacuation. He lost flesh and the pain and discharge increased. He went to the Leeds General Infirmary, where colotomy was performed for stricture of the rectum.

Examination showed nothing abnormal in the nervous, thoracic, or appendicular systems. The appetite was good, the tongue clean, the bowels regular, and micturition normal. The shape of the chest was good and also the movement. There was no cardiac bruit.

The left groin bore a cicatrix.

The patient was discharged on January 24, 1908.

During the time he was in the Infirmary, the wound was attended to. He was not satisficed and took his discharge two days after admission.

CASE 8.

LOCOMOTOR ATAXIA.

R. A. L., aged 61, was admitted to the Leeds Union Infirmary, on January 30, 1908, complaining of inability to walk, etc.

He had been a travelling draper; he had been married, but had no children.

He had syphilis when aged about 21 - forty years before; and seventeen years later he began to have trouble with his legs. He had been intemperate in the use of alcohol. He had not been able to walk for twelve years and had been confined to bed for four years. During the six months preceding his admission his sight had become worse, his toes had turned in, and he had become deaf. He complained of griping pains in the stomach at times, but had shooting pains often - each attack lasting about eighteen hours.

Examination of the eyes showed slight opacity on each cornea. Arcus senilis was present, and the pupils were slightly unequal. His sight was poor, as also his hearing. His memory and intelligence were weak, and he was affected with dizziness.

The breathing was short at times, but without pain. There was a slight cough, but no sputum. His appetite was good, the tongue furred, and the bowels active. He was sometimes incontinent

of urine, the quantity of which varied. He did not complain of pain on micturition.

He was not able to approximate the fingers of either hand. For fine movements he had no coordination.

The lower limbs were oedematous nowhere. The knee-jerks were absent. Sensation was much impaired. The plantar arch was exaggerated and the toes hyperflexed. The skin of the body bore no signs of syphilis. The shape of the chest was fair and movement thereof tolerable satisfactory. Nothing abnormal could be heard in the lungs, and there was no bruit in the heart. Nothing noteworthy was observed in the abdomen or in the genito-urinary organs.

On February 2nd, diplopia was noted.

On August 6th, the patient was still incontinent. Incoordination still persisted, the patient being unable to feed himself. He still had occasional attacks of "shooting pains"; during these he had a rise of temperature and required a draught. He had five of these attacks between June 1st and August 6th.

This patient is still in hospital and has not improved under any treatment. He eats well and sleeps well. The only complaint he makes is about nocturnal pains, which are relieved by antifebrin.

CASE 9.

MORBUS CORDIS: VERTIGO.

W. S., aged 67, was admitted to the Leeds Union Infirmary, on January 28, 1908, complaining of dizziness, headache and cough - also breathlessness and palpitation on exertion. This condition had begun two days before.

His occupation had been that of a gardener, but he was now an inmate of the workhouse. He had been married three times - the first time when aged 24. He had, as issue of the first union, one daughter, then still living. The second wife had borne one daughter, who died; and the third wife, whereabouts he did not know, had borne him two daughters and one son, all then still living.

His previous disorders had included "heart disease", pleurisy, inflammation of the bowels, typhoid fever, syphilis - when aged 20 - and an inordinate use of alcohol.

During the twelve months prior to admission, he had become dizzy on assuming the erect position. His memory was obviously failing.

His breathing was short and slightly painful, and he had a sputum-raising cough. His appetite was fair, the tongue was furred and characteristic of the syphilitic condition. He vomited after admission, but the bowels were regular. At times he was obliged to get up in the night for micturition. The urine showed a trace of albumin.

The cuticle on the body and limbs bore nothing worthy of note. The shape of the chest was good and the movement fair. An impaired note was heard from the upper lobes of both lungs and râles all over the left organ. The heart's sounds were "slapping" and irregular, with a suspicion of a ventricular systolic murmur. The right testicle was enlarged and there was a double inguinal hernia.

On February 12th, all the symptoms had gone except the dizziness. He felt weak, but his cough was better. During the following sixteen days he took bromides, and then complained feeling sleepy. He was dizzy only when standing.

On May 18, 1908, he was transferred to the workhouse and did some work in the gardens; but his legs began to swell and he became rather short of breath, so he was readmitted to the Infirmary on June 5th. He had not then much of the dizziness, but the pulse was irregular and varied from 70 to 80. Over a limited area, in the apical region of the heart, there was a marked systolic bruit. Failure of memory was again apparent.

On July 9, 1908, he took his discharge from the Infirmary.

This patient was readmitted to the Infirmary, on October 6, 1908, complaining of pain in the abdomen, sickness, and vomiting which had occurred suddenly during the previous night. He also complained of breathlessness on exertion, as well as palpitation. The dizziness did not trouble him much. He had slight cough and

expectoration. No oedema was visible. The heart's sounds were irregular with ventricular systolic murmur. The epigastrium was tender. He had been troubled with pain in the stomach for a month or two. On the night of March 6 - 7, 1909, he had a seizure affecting the right side. He had lost the use of the right arm and right leg, and the power of speech also. Cyanosis of the cheeks and nose was marked.

On March 11th, respiration was of the Cheyne-Stokes character, the apnoeic interval varying from ten to fifteen seconds. The pulse was irregular and became slower during apnoea. The pupils of the eyes did not change. He was then almost entirely helpless, and he died on March 14th.

He was treated by means of rest in bed, regulation of diet, and cardiac tonics with expectorants. The following mixture was given every four hours:

R/

Vin. ipecac., m.iv.
Tinct. nucis vom., m.iii.
Tinct. digitalis, m.iv.
Pot. citrat., gr.xv.
Aq. chloroform. ad ℥i.
M. Ft. mist.
Sig.- ℥i. 4 hrs.

He improved greatly and was able to walk about, but on March 6th he had a "stroke" and gradually got worse.

CASE 10.

HEART DISEASE: VARICOSE VEINS: HERNIA:
INFLUENZA.

J. N., aged 64, was admitted to the Leeds Union Infirmary, on Fenruary 5, 1908, complaining of a severe cough of nine days' duration and sudden onset. He stated that he had never coughed before. The cough was very troublesome by day and at night, causing pain in the chest and head. He had pain in the eyes also.

His latest occupation had been that of a "sandwichman", and he does not appear to have spoken of any other. His wife

died nine years before his admission, and for three years before their death they had lived apart.

He had been in this infirmary four years anterior to the above-mentioned date, complaining of pain in the head. He had venereal disease about 1888 - twenty years before 1908. There was a cicatrix in the right groin.

On admission he was found to be deaf; his breathing was easy; there was no sign of pain, except after coughing, which was very severe, but was not followed by the raising of any expectoration.

The appetite was fair, the tongue was furred, the bowels were inclined to be constipated, and micturition was normal.

In both legs were varicose veins.

Percussion gave an impaired note over the right lung, and auscultation elicited signs of râles and rhonchi all over the lungs.

There was some bruit of the heart and visible arterial pulsation.

Double inguinal hernia was manifest.

His temperature on admission was 100.2°F., respirations 24, and pulse 84.

On March 13, 1908, the temperature had been lower for a month; there was slight cough occasionally; the pulse was irregular; and there was very slight cardiac murmur.

The patient gradually improved and was ultimately discharged. He was treated by means of aspirin powders (gr.v.) every four hours, and then three times a day for a week. After the use of aspirin, a tonic containing nux vomica was continued until he left this institution.

CASE 11.

MORBIS CORDIS: INFLUENZA.

J. J., aged 48, was admitted to the Leeds Union Infirmary on February 11, 1908. Four years previously he had been here with a fracture of the right leg. He had had a cough for eighteen months preceding the present admission, and he had syphilis

when 28 years of age.

He was a labourer, had not been married, and took alcoholic beverages "at times".

Five days before admission, he had pain and tightness in the chest with cough, expectoration, and shortness of breath. He had had many colds during the winter and attributed his illness to them. He had vomited on two days before admission, could not retain food, and was losing flesh.

The breathing was marked by slight dyspnoea, the cough caused pain, and the sputum was mucopurulent and frothy and tenacious.

The appetite was fair and the tongue furred.

The body was thin and the left side of the chest flat.

Percussion of the thorax yielded an impaired note generally, and auscultation of the lungs gave evidence of râles in front.

The heart sounds were short, weak, flabby, irregular, and murmurish.

The hepatic area was slightly enlarged, and there was tenderness in the right lumbar region.

Cicatrices were found in the right groin and on the glans penis.

On March 12th, the temperature was 101°F., pulse 116, and respirations 98.

On March 17th, the temperature was 101°F. in the morning, but lower in the evening. The bowels were constipated and offensive. The abdomen was somewhat distended, and there was "mouse-like odour" about the man. There was a cardiac bruit, with the first sound at the apex transmitted to the back of the chest.

He was ultimately discharged at his own request, having been treated as follows:

R/

Ammon. carb., gr. iii.

Tinct. digitalis, m. v.

Aq. chloroform. ad ℥i.

M. Ft. mist.

Sig.- ℥i. 4 hrs.

R/

Quinin. sulph. gr. iv.

Sig.- Every 4 hrs.

CASE 12.

EMPHYSEMA:BRONCHITIS:MORBUS CORDIS.

G. D.,aged 68,was admitted to the Leeds Union Infirmary on February 17th,1908.

He had bronchitis and asthma for some years before admission and syphilis in 1893.

About six weeks before admission,he commenced to cough and spit and to suffer from shortness of breath. Swelling of the legs began three weeks prior to admission.

He had been a heavy drinker.

His breathing was marked by orthopnoea, with slight thoracic pain and expectoration following from the cough.

His appetite was fair and his tongue clean.

The action of the bowels was irregular, but micturition was normal.

On both arms were scars;while oedema was found on the legs,with numerous scars on the outer side of the right thigh and a few on the left.

Scars appeared on the back and chest and abdomen.

The chest was barrel-shaped,with movement fair and hyperresonant on percussion.

Auscultation of the lungs revealed râles all over.

His arteries were thickened,while the cardiac sounds were feeble and distant with a very slight systolic murmur at the apex.

There was oedema of the penis and scrotum,with a suggestion of ascites.

His temperature on admission was 97°F., respiration 48, and pulse 116.

Increased arterial tension was manifest in two or three days following admission.

On March 9th, the breathing was still rapid,short,and difficult;but there was no orthopnoea. The cough and expectoration were still troublesome. Oedema continued to spread.

On March 23rd, he was no better. There was aortic dilatation.

On March 30th, the oedema was still spreading, the breathing was short, and death supervened on April 1, 1908

The following mixture was prescribed on admission:

R/

Vin. ipecac., m.v.

Tinct. digitalis, m.v.

Sp. aeth., m.x.

Aq. chloroform. ad ℥i.

M. Ft. mist.

Sig.- ℥i. 4 hrs.

Little improvement resulted, and in four days the digitalis was increased to ten minims. This resulted in an increased output of urine and an improvement in the condition of the heart.

He complained of cardiac pain and tightness of the chest at times; he recoved an occasional evening draught containing tinct. belladonnae (m.x.) and liquor trinit. (m.i.), and poultices to the chest frequently.

In spite of treatment, death resulted.

CASE 13.

PULMONARY TUBERCULOSIS: PARESIS (NEURITIS).

(WITH CEREBRAL SYMPTOMS.)

A. T., aged 32, was admitted to the Leeds Union Infirmary, on February 27, 1908, complaining of cough and loss of power in his legs. He had a similar attacks three years before and was told that he had consumption five years prior to admission.

He had syphilis at the age of 17 years, and he was married eight years later.

He stated that he took "a little alcohol"; but, when younger, he took three or four glasses each night.

The features had a pinched appearance.

The breathing was easy whilst the patient remained still; his cough was followed by slight expectoration.

The appetite was good, the tongue furred and the bowels regular, as also was micturition.

The lower limbs were emaciated and weak, with defective

sensation. He was unable to straighten them.

The supraclavicular glands were enlarged, especially the right, and the skin was pale.

There was dulness of the left lung in front, vocal fremitus and resonance were increased on the left side, and there was dulness of the right upper lobe, but no râles could be detected.

There was a very slight murmur over the pulmonary valve, with a slight murmur in the cervical vessels.

The inguinal glands were enlarged in both sides.

His temperature on admission was 101°.F.

On March 13th, there was manifest bronchophony of both apices, dulness of the upper lobes of both lungs, with pectoriloquy in both apices and the upper lobe of the left lung; the appetite was fair add the bowels acted fairly. The ratio of temperature to pulse was disturbed.

On March 21st, the cough was not very troublesome, but the patient was very thin and the gums were sore.

On April 5th, he had delusions of persecution.

During his stay in the hospital he was treated with a sedative cough mixture, quinine pills, and an occasional draught of ergotin at night when the cough was particularly troublesome. This treatment improved his condition, but the development of cerebral symptoms occasioned his tranference to the imbecile wards where he was not under our observation. Death resulted in a few weeks after his removal, but no post-mortem examination was allowed.

CASE 14.

SYPHILITIC CEREBRAL DISEASE.

J. T., aged 45, was admitted to the Leeds Union Infirmary on February 28, 1908. He stated that he had fits when a child and syphilis when 35 years of age. Two years before that date, he had inflammation of the lungs, and had dyspnoea at times when in the army.

He affirmed that he had fallen in the street a few days prior to his admission to the Union Infirmary, the fall being

caused by a fit. He lost consciousness and received a cut over the left eye. He insisted that he was not drunk at the time, although he had had some beer. He did not remember anything after the fit until he found himself in the Leeds General Infirmary, where he remained until sent to our institution.

Examination showed that the pupils of the eyes were small and their expression dull. When standing with his feet together and his eyes shut, he was unsteady. He could walk along a straight line, but complained that he was dizzy at times.

The breathing was easy, and there was no pain in the chest or cough or sputum.

His appetite was good, his tongue furred, and the bowels constipated. Micturition was normal both day and night.

From the lower limbs the knee-jerks were absent; but sensation was good, and there was no oedema.

The skin showed no abnormalities.

The shape of the chest was good and movement fair.

Auscultation of the lungs yielded nothing noteworthy, but the sounds of the heart were soft and faint. The arteries were thickened, and there was visible arterial pulsation.

The abdomen showed left inguinal hernia.

No sores or marks were found on the penis.

The temperature on admission was 98°F., respiration 24, and pulse 64.

A course of bromides soon relieved him, and he was able to go to work within a fortnight.

CASE 15.

CANCER OF THE LIVER.

G. R., aged 68, was admitted to the Leeds Union Infirmary on March 11, 1908. He had been a plasterer, was married, and had one daughter living.

He had syphilis twenty years before the date of his admission, and also a "stroke" five years ago.

He appears to have consumed large quantities of beer in his time.

A day or two before his admission he found himself very weak and unable to walk.

Examination showed the breathing to be easy, and without pain or cough or expectoration.

The appetite was good, the tongue furred, and the bowels constipated.

Micturition was normal; the lower limbs were weak. Nothing abnormal was noted during the examination of the thorax. There was tenderness over the liver, and the organ was enlarged, irregular, and painful.

On March 26th, jaundice, which had been coming on gradually for four or five days, was very marked. The skin was of a deep-yellow hue, the conjunctivae were yellow, and the urine was high in colour; but the patient did not complain of itching or pain or thirst or sickness. He was manifestly losing weight.

On April 1st, ulcerative stomatitis was noticed, but there was no pain. Five days afterwards the jaundice was less marked, but biliary staining of the urine was deeper.

On April 28th, there was neither jaundice nor stomatitis. The teeth were loose; there was no diarrhoea. The patient felt "all right"; he died, however, on June 5, 1908.

The only treatment given was for the relief of the pain, and consisted of gradually increasing doses of nepenthe.

CASE 16.

BRONCHITIS: MASSIVE TONGUE.

G. H., aged 76, was admitted to the Leeds Union Infirmary on March 14, 1908. He had been a bricklayer and married at the age of 25. His wife died twelve months before his admission, and his son, aged 50, died three weeks subsequent to the death of his wife.

He had served for five years in the army, and had syphilis during this period - in 1853. This was, he said, his only illness prior to that of which is was complaining.

He had been temperate, although he "took a sup" when he lost his wife.

Up to the age of 71 he had worked the full day's work whenever he had it to do. Since that time he has done "small jobs."

About fourteen days before his admission he became conscious of weakness, faintness, loss of appetite, and a cough. Gradually he became worse.

The eyes showed a slight inequality in the pupils.

He complained of dizziness at times.

His breathing was easy while he remained quiet; but he complained of thightness of the chest, and had a cough that raised purulent sputa.

His appetite was poor.

His tongue was massive and furred.

The bowels were regular and micturition ordinary.

The superficial veins of the body were prominent, and there was fibrillary twitching of both large pectoral miscles.

The shape of the chest was fair, and the same could be said for the movement thereof.

Percussion gave an impaired note over the right upper lobe of the lung, and auscultation of these organs elicited signs of râles, especially on the right side.

The heart's sounds were soft and regular.

The inguinal glands were enlarged.

Both grains showed cicatrices.

On March 21st, auscultation and percussion revealed manifest dulness of the left upper pulmonary lobe and bronchial râles, and a few days later death supervened.

Cardiac stimulants were exhibited in the hope of relieving the urgent symptoms.

CASE 17.

CYSTITIS: CEREBRAL DISEASE.

J. S., aged 49, was admitted to the Leeds Union Infirmary on March 17, 1908. He had been an engineer and had lived apart from his wife for twelve years. She had borne him eight children, of whom two were dead.

He had syphilis at the age of 21 years, but did not speak of any any other disease prior to that of which he complained on admission.

He had been a considerable consumer of beer.

About three weeks before admission, he was troubled with diarrhoea, but did not pass much urine. When it was passing, it scalded him. The diarrhoea was very troublesome, and was occasionally accompanied by blood and intestinal pain. He had been treated by the dispensary and other doctors, but had been gradually becoming worse.

Examination of the eyes showed the pupils to be unequal and the expression vacant.

He answered questions slowly and with hesitation.

His breathing was short at times, but there was no pain with respiration. He had a slight cough with a little expectoration each time.

His appetite was good and the tongue furred; he did not vomit, but had eight movements of the bowels on the night of his admission and the following day.

After admission he had trouble with a stricture, RNP was catheterized, six ounces of bloody urine being withdrawn.

Nothing of importance was discovered in the appendicular system.

The skin of the body was pale, and the man was obviously losing flesh.

The shape of the chest was fair and movement fair; percussion revealed nothing abnormal.

The heart's sounds were rapid, and a certain amount of abdominal tenderness was observed.

On March 22nd, examination showed that the apex and upper part of the left lung were comparatively dull, and there was crepitation.

On admission his stools were very loose and offensive; he was incontinent and the urine contained pus and blood.

On March 18th, there were four motions of the bowels in the twenty-four hours, the same being accompanied by the passage of much mucus.

On the 19th, there were again four motions, teeming with mucus, offensive in odour, and green in colour.

On the 20th and 21st, the motions were of normal colour;

and on each of these dates blood was present in the urine.

The patient died on March 31,1908.

This case was treated with tannigen powders (five grains every four hours) for the diarrhoea;urotropin for the bladder trouble,hyoscyamus being also exhibited for the same indication; and sodium iodide for the cerebral condition. The diarrhoea was not arrested and continued more or less until death;the cystitis did not improve;and the mental condition was slightly ameliorated.

CASE 18.

CASE ILLUSTRATING THE CHARACTERISTIC FAMILY HISTORY.

A. D.,aged 60, was admitted to the Leeds Union Infirmary on April 6,1908. He had gained a livelihood as a hawker.

He had been married,but his wife committed suicide by inhaling coal-gas last July.

He had had syphilis about twenty-five years before coming under our observation,and for some years he had suffered from a "winter cough".

He professed to have always been temperate in the use of alcohol, but he had been very short of food for some time.

Last week he had walked from London to Leeds and became ill on the road.He got wet and had no food.Then he had headache, cough,expectoration,shortness of breath and swelling of the legs,but no sweats.

Nothing of importance was found relating to the nervous system.

The breathing was short;there were sternal pain,cough,and sputum.

The appetite was good;the tongue betokened syphilis;the bowels acted regularly;and there was nothing abnormal in micturition.

Oedema was present in the lower limbs.

The shape of the chest was fair and movement fair.There was dulness of the left upper lobe.Crepitation and râles were

audible in the left lung.

The cardiac dulness appeared to be diminished, and the heart's sounds were regular.

The liver was enlarged and tender. There was a cicatrix in the left groin.

His temperature on admission was 98°F., his pulse 104, and his respiration 28.

This case was treated as one of bronchitis with incipient phthisis, an alkaline expectorant being given every four hours. His condition rapidly improved, and he took his discharge a week after admission. The interest of this case lies in the fact that it illustrates the characteristic family history, his wife becoming insane and having no issue.

CASE 19.

LOCOMOTOR ATAXIA.

J. McD., aged 60, was admitted to the Leeds Union Infirmary, on April 8, 1908, complaining of weakness of the legs, pain in the back, etc.

He had been a ship's fireman. His wife died of heart disease and dropsy. Of their family of six, all died young; but one reached the age of 10 years.

He had syphilis at the age of 40. He experienced what he designated as "a nervous condition" about a year before his admission, and could not walk without help. He staggered as if intoxicated. For many years he had been more or less of a confirmed drunkard, but appears to have a total abstainer for the three years prior to his admission.

About the middle of March, he began to be troubled with weakness and pain in the back and legs, especially at night. His legs were weak, and one knee frequently gave way under him when walking. His knee went "silly". The leg became inflamed and painful two or three days before coming here. He had undergone exposure and been short of food for some time.

Examination of the eyes showed the pupils to be unequal, the left being dilated. They reacted to accomodation, but not to

light. His hearing was defective, speech thick, and memory bad. The breathing was easy; there were sternal pain, and a slight cough, but no expectoration.

His appetite was good, the tongue was large and furred, the throat was sore, and the bowels were regular. Sometimes he would not pass urine for twenty-four hours, and at other times he would be incontinent. Occasionally he had pain with micturition.

His grip was good. The knee-jerks were absent. On the left leg were scars and varicose veins, and there was an ulcer on the dorsum of the right foot.

Numerous small scars (sparks) were found on the chest. Nothing abnormal was found in the thorax, save that the heart's sounds, which were regular, were modified.

Cicatrices were present in the right and left groins.

His temperature was 97.8° F., pulse 84, and respiration 20.

He could not go down a hill without great care, being afraid of falling headforemost down. He could go well on the level and could "walk uphill with any one". Sometimes, when walking as he thought in ordinary fashion, one foot would behind the other and he would fall. About a year before admission he found that, when he shut his eyes when washing his face, he fell headforemost into the basin. In this particular he was improving. If he went into an unknown dark place, he would stumble and grope, seemed quite at sea, and would probably fall. Twelve months previous to his examination, he could not walk unless he kept his eyes fixed on the ground and watched where he was going. At that time he speech was affected, being thick and bad; but his speech had gradually improved during the six months last passed.

With his eyes open or shut, coordination of his hands and fingers was good. With feet approximated, eyes open and looking at the floor, there was slight incoordination. In the same position, looking at the ceiling, incoordination was marked, as also with the feet approximated and the eyes shut. With feet approximated, eyes open and a card placed between his chin and the floor, there was less incoordination.

The gait was ataxic. He walked with his legs wide apart,

and with the help of a stick. When walking he felt as if treading upon indiarubber. Coordination of his legs was bad, and the sense of pain was diminished.

Antisyphilitic treatment was tried. Symptomatic medication eased him, and he is now (3/5/09) slightly better than on admission a year ago.

CASE 20.

PARALYSIS.

T. D., aged 58, was admitted to the Leeds Union Infirmary, on April 21, 1908, complaining of "paralysis".

His occupation had been that of a clerk. He was a widower. One daughter was living, but two had died of "consumption of the bowels". His wife had died of "consumption," presumably the pulmonary variety.

Four years before admission he was operated upon for appendicitis. He had smallpox a year later. He had also suffered from "gastric catarrh", and had previously been treated in the Infirmary for paralysis. He had taken a fair amount of drink and had syphilis when aged 18.

On December 14, 1907, he had a "stroke", which affected his right side and his speech. He came into the Infirmary and improved and took his discharge, but was forced to return on the same day as his breathing was short and he was unable to walk.

His speech at times was slurred.

His breathing was short at times, but there were neither pain, cough, nor expectoration. He had a fair appetite, and the bowels were regular. The tongue gave evidence of syphilis. Micturition was normal. The right arm and the right leg were both weak. The shape of the chest was normal and movement fair. Auscultation of the lungs yielded nothing abnormal, and the heart's sounds were regular but faint. There was a scar over the region of the appendix and cicatrices in both groins.

His temperature on admission was 97°F., pulse 92, and respirations 27.

The treatment of this case was symptomatic, no antisyphilitic medication being attempted. The weakness of the arm and

leg gradually became less, and he was considerably improved on his discharge a month later. No further trace of this patient has been found since he went out.

This case illustrates the fact that hemiplegia may improve without any treatment.

CASE 21.

CEREBRAL SYPHILIS.

K. A., aged 47, was admitted to the Leeds Union Infirmary on May 5, 1908.

She was a charwoman, a heavy drinker, and a riotous liver. Her husband did not live with her, but she had been pregnant eight times by him. Three of these pregnancies resulted in miscarriages, one in premature birth, and four in living children.

Her previous health had been good.

On admission she could not give any information, but a neighbour stated that she became irritable, talkative, and restless about eight weeks before admission and that she lost her voice completely at times.

When examined, the patient's memory was found to be defective, and she was emotional in temperament. The digestive system was in good condition. There was impaired percussion note over the right upper pulmonary lobe in front, but no other abnormality could be discovered in the respiratory system. The heart's sounds were regular and free from adventitious phenomena. The arteries were slightly thickened.

The knee-jerks were absent, and there was no incontinence.

A slight purulent vaginal discharge was present.

During the month of May she improved slowly; at times she was quite sensible and at times the reverse. In June she improved still more, but was emotional at times. This improvement continued until October, when she took her discharge.

She received potassium iodide and mercury internally:

℞

Potass. iodid., gr. x.

Liquor. hydrarg. perchlor., ℥i.

Aq. ad ℥i.

M. Ft. mist. Sig.- ℥i. t. d. s., p. c. ex aq.

A sedative draught was likewise occasionally prescribed.

CASE 22.

SCORBUTUS:ARTHRITIS:TUBERCULOSIS.

J. H.,aged 27,was admitted to the Leeds Union Infirmary, on May 13,1908,complaining of pain in and swelling of the right knee.

He was a boot-rivetter,unmarried,and had syphilis about ten years ago. He had taken a fair amount of drink and had been short of food for some time.About four or five months before his admission the pain and swelling began;he had been in the Infirmary in March,1908,and was discharged about the end of April much relieved.But the trouble returned when he began to walk,and the spots appeared on his legs about the first day of the month of May.

The patient's breathing was easy when he was at rest. Sometimes he had a little pain,and he had a slight cough with discharge of a little sputum.His appetite was good,the tongue was furred and marked by the teeth.The bowels were confined, but micturition was normal.

Spots appeared on both legs.The right knee was swollen and painful,oedema was manifest in the right leg,and there was a red patch around the right ankle.The shape of the chest and its movement were ordinary,and the heart sounds were regular. Cicatrices were present in both groins.

On May 19th,it was noticed that he sweated profusely on falling asleep.There was dulness of the right upper pulmonary lobe and some supraclavicular crepitation on both sides. He complained of pain behind the clavicles.

On June 6th,there was swelling of the knee,and a Scott's dressing and extension were applied

On July 22nd,the cough was slight and the sweating had decreased.He still complained of pain in the knee.

About the middle of August he was given a second plaster case,which remained on for five weeks.

On September 21st,the right knee was swollen and stiff,

and he could neither bend the knee nor raise the leg.

During the first weeks of his stay in hospital, he was treated on antisyphilitic principles. He had a mixture of potassium citrate and syrup of lemons every four hours, and vegetables for dinner. Since admission his latent tuberculosis markedly developed, and at present (3/5/09) he is not improving on antituberculous treatment.

CASE 23.

SYPHILITIC LEG-ULCERATION.

M. C., aged 48, was admitted to the Leeds Union Infirmary, on June 1, 1908, complaining of a large ulcer on the right leg of some months' duration. The leg first ulcerated seventeen years ago, and at intervals it has been so ever since.

The patient was a widow and had no definite method of earning her living. She had been pregnant seven times. The first pregnancy resulted in a still-birth; the second, third, and fourth conceptions produced living children; the fifth pregnancy resulted in a miscarriage, as did also the seventh; and the sixth had consummation in a living infant.

Her previous health was good, and she appears to have always been temperate in the consumption of alcohol.

The respiratory, digestive, and circulatory systems did not present any abnormalities.

On the lower third of the right leg was an extensive, irregularly-shaped, dirty, discharging ulcer involving the whole circumference of the limb. The ulcer was deep, but did not cause pain. There was oedema of the leg in addition.

The left leg showed the cicatrix of a healed ulcer. The veins were not varicose.

The ulcer slowly improved under antisyphilitic treatment, but she took her discharge before it had healed. In addition to this treatment, the patient was kept in bed which was elevated at the foot.

CASE 24.

LOCOMOTOR ATAXIA.

M. P[illegible], aged 45, was admitted to the Leeds Union Infirmary, on June 9, 1908, complaining of shooting pains in the legs and of the knees "giving way". He had been in this Infirmary three years before. The recurrence of trouble which caused him to seek readmission had begun about a fortnight before - say, about May 25, 1908.

He was a shoemaker, was married, and had three children living - one having died in infancy. He had syphilis about 1896. He had taken a fair amount of drink, but lately he had been short of food.

Examination showed lack of diplopia in the eyes - a condition which had subsisted for seven years. The nervous system was in an unstable condition, and the patient complained of headache and dizziness. His breathing was at times short and he coughed now and then, raising each time a slight amount of expectoration. He could eat fairly well, had a furred tongue and regular bowels; he had no trouble "at present " in micturition.

The legs were practically helpless, the knee-jerk was in abeyance, and the ground felt soft under his feet.

An impaired note was observed in the chest; the heart sounds were regular; and the abdomen and genito-urinary organs yielded nothing worthy of note.

This patient was discharged, on June 26, 1908, as he considered himself fit to do some work. The pains were relieved by potassium iodide and occasional doses of antifebrin.

CASE 25.

NEURITIS.

J. W., aged 45, was admitted to the Leeds Union Infirmary, on June 11, 1908, complaining of persistent pains in the hands, feet, and back, these pains having begun seven months prior to that date.

He had been a drinker of spirits and beer, and he had syphilis when aged twenty-nine.

The eyes showed arcus senilis. The breathing was easy,

without pain or cough or sputum. The appetite was good, but the tongue was furred and tremulous. The bowels were confined, but micturition was normal. The heart sounds were regular.

Reddish-brown patches appeared on both legs, and there was a cicatrix on the fraenum.

On June 14th, there was still complaint of pain in the hands and feet. The grip of each hand was weak, and he was unable to wash himself. He could use his arms, but could walk very little The pupils of the eyes were unequal, the right one being dilated. He complained of headache. No nystagmus or diplopia was noted. The hands were thin and, generally, he was losing flesh. There was no wrist-drop.

On June 28th, the pain had gone from the feet and was much increased in the hand.

On July 30th, the patient took his discharge.

During his residence in hospital, the patient was treated on general principles and received ten grains of potassium iodide three times a day. He was much improved when he took his discharge, and he has not been heard of since.

CASE 26.

MORBUS CORDIS: LEG ULCERS: INSANITY.

W. A., aged 68, was admitted to the Leeds Union Infirmary, on June 15, 1908, complaining of swelling and ulceration of the elgs.

He had at one time worked as a shipbuilder, but for the past thirty years had been engaged in a brewery. His wife was living and a patient in this Infirmary. Six daughters and one son were alive, while two children were dead.

His left foot had been crushed when he was a young man of about 23 years. He had syphilis when some 18 years old. He had influenza at a period not stated. He had consumed large quantities of beer.

The right leg had begun to trouble him about three weeks before admission. He thought that he had scratched it when asleep. The leg became rapidly worse, swelling and ulceration and great pain being experienced therein. The left leg had troubled

him more or less for years.

He complained also of dizziness at times. The breathing became short on exertion, but without pain or cough or expectoration. His appetite was good; but the tongue was furred and the action of the bowels restrained. He passed urine involuntarily at times.

On the upper third of the left leg varicose veins appeared, and also a small ulcer. There was oedema with some redness, and the left foot was deformed from the above-mentioned cause. On the lower third of the right leg was an ulcer involving the inner half of the circumference of the leg. The ulcer was irregular in shape and filthy, while the leg was swollen, red, and painful. One or two small ulcers appeared behind this leg, and there were varicose veins.

The cardiac sounds were soft and irregular, and indicated degenerate muscle. The patient suffered from umbilical hernia, and a cicatrix appeared in the right groin.

On June 24th, the ulcer was much cleaner. A few sloughs remained; but the pain was less and the foul discharge, whilst still present, was not so bad.

On July 6th, the ulcer was level with the skin, cleaner, and showing signs of healing.

A few days later, the man was getting in and out of bed and was talking strangely. It was deemed necessary to put him under restraint. He was taken away to an asylum on August, 21, 1908.

The ulcer was treated with boracic fomentations until it was clean, and it was strapped after healing had occurred. The patient was confined to bed and treated on general principles. The foot of the bed was elevated to promote the healing of the ulcer. His diet was light and nourishing, and he received potassium in a mixture containing cardiac stimulants.

This treatment resulted in the improvement of the ulcer, but that is all that can be said.

CASE 27.

MORBUS CORDIS.

J. S., aged 31, was admitted to the Leeds Union Infirmary, on June 13, 1908, complaining of pain in the side of the chest and left clavicle, and also of dizziness, breathlessness, and palpitation. He had been ill "off and on" since January. He had never had oedema or cough.

The pupils of the eyes were unequal. There was no headache or dizziness observed on examination after admission. His breathing was easy, though accompanied by slight pain. There was no cough or sputum. His appetite was "easy", the tongue furred and the bowels confined, while micturition was normal.

The skin bore no scars. The shape of the chest was normal and the movement fair. The cardiac sounds were short and slapping, with a ventricular systolic murmur, and there was arterial pulsation.

About 8 p.m. on June 20th, - a week after admission, - while reading he was "seized with a trembling and shortness of breath". He felt weak and sick and did not sleep all that night. He was very pale, but had no pain.

He stated that, on the 14th of the previous January, one of his companions fell dead at his side. He had not been well since, and lately he had been unable to sleep properly.

The patient took his discharge on June 27th.

A regulation of the patient's diet, combined with rest in bed and tonics, resulted in an improvement in his condition; but he did not remain under observation long enough for one to say that he was cured.

CASE 28.

MORBUS CORDIS.

J. T., aged 57, was admitted to the Leeds Union Infirmary, on July 13, 1908, complaining of swelling of the legs and feet, etc.

He was a file-cutter and married, but did not live with his wife. Ten children had been born to them, of whom three had

died.

He had typhoid fever when about 27 years of age. Both his legs had been broken. He had previously been in this Infirmary with "hip trouble". He had syphilis when about 17. He had worked very hard during his life and had taken "some drink".

The illness of which he complained on admission began some eight days before. He went out for a walk and on his return noticed that his legs had swollen. A few days later the legs, and then the feet, began to swell, and the swelling gradually spread. He had a cough and suffered from breathlessness for many months. He suffered from headache and dizziness for many months. He experienced these two symptoms "especially when his hair was long". The dizziness had troubled him more or less ever since he had typhoid fever.

His breathing was easy when he was quiet. He had a slight cough with a little expectoration, and sometimes a pain in his left side.

His appetite was good, the tongue furred, the bowels regular, and micturition normal.

Oedema appeared on the back, scrotum, penis, abdominal wall, and on the legs and feet.

The tibiae were irregular and thickened.

There was an impaired note, and also increased vocal resonance, over the right upper pulmonary lobe. The cardiac sounds were regular, the first modified and bruit heard with the second. A cicatrix was seen in the left groin.

On July 16th, he compained of praecordial pain and headache: his urine was loaded with albumin.

On July 22nd, the oedema was less, but he complained of severe headache. Next day he was discharged at his own request.

The treatment consisted of the following mixture:

R/

Tinct. digitalis, m. ix.

Spt. aether., m. x.

Mist. tuss. alk. ad ℥i.

M. Ft. mist.

Sig.- ℥i. 4 hrs.

His chest complaint was relieved, and he left contrary to advice.

CASE 29.

SYPHILITIC VERTIGO: MORBUS CORDIS.

S. W., aged 58, was admitted to the Leeds Union Infirmary, on July 11, 1908, complaining of dizziness and sickness.

He was a coachman and unmarried. He had typhoid fever in his youth, and later had been subject to bilious attacks. He suffered from syphilis more than twenty years ago, and had been very bilious ever since. His consumption of alcohol had been moderate.

The illness of which he complained on admission began with a feeling of sickness and giddiness. He felt like a drunken man, fell on the floor, and could not speak properly. He did not lose consciousness or hurst himself. He had had attacks of giddiness before, but this one was the worst. He felt dazed and wanted to sleep.

He complained of dizziness and frontal headache and heaviness over the eyes. The breathing was easy and without pain. There was a slight cough, but no sputum.

His appetite was fair and the tongue furred. He felt sick, but did not vomit. The bowels were constipated, and he was sometimes incontinent of urine. The knee-jerks were sluggish.

The cardiac sounds were regular with a ventricular systolic murmur. The arteries were thickened. Tenderness was found over the liver area. The right groin bore a cicatrix.

On July 16th, the vertigo was less, and the action of the bowels and micturition were normal.

He complained of sickness on July 22nd, but took his discharge six days later.

This case was treated with sodium iodide (gr.v.) and sodium bicarbonate (gr.x.) every four hours.

CASE 30.

ULCERATED LEG.

J. D., aged 64, was admitted to the Leeds Union Infirmary on July 28, 1908.

He had been a currier, and his wife had died eighteen years ago from a chronic internal complaint. But one child had been born of the marriage, and this died at the age of nineteen months. The patient was nineteen years of age when married. He had smallpox when a baby, and syphilis when 24. His legs had been ulcerated for nearly twenty years, healing and breaking out again. He had an elastic stocking for his right leg, on which latter were varicose veins.

Since the age of 22, after the expiry of his apprenticeship, he had drunk spiritis plentifully, chiefly rum.

The left leg had been "bad" about two months before July, 1908.

Nothing abnormal was discovered on examination of the nervous system. The breathing was good, without pain. There was little cough and no sputum. The appetite was good, the tongue normal, and the bowels regular.

The right leg showed a pigmented cicatrix in its lower third, with thickening of the tibia. The left leg, in a similar situation, was ulcered and also showed thickening of the tibia.

Thoracic percussion and palpation showed nothing abnormal, nor did auscultation of the lungs. The liver area was small.

The left groin showed cicatrices.

Tonics, nourishing diet, and the usual treatment for ulcers caused his restoration to better health.

CASE 31.

ULCERATED LEG: MORBUS CORDIS.

G. S., aged 63, was admitted to the Leeds Union Infirmary, on September 22nd, 1908, complaining of ulcerated elgs.

His occupation was that of a smith; his wife was in this Infirmary, and there had been no issue of the marriage.

He had syphilis when 17 years of age. He had been temperate in consumption of alcohol.

His illness commenced, in March, 1908, with ulceration of the right leg. The left followed suit, and both became worse.

Examination revealed slight curvature of the spine and deafness. The breathing became short on exertion, and there was a slight cough. The appetite was fair, the tongue furred, and the action of the bowels restrained.

On the left leg was an oval ulcer, 1" x 1½", superficial, and of regular outline. On the outer side of the lower third of this leg was a deep, discharging ulcer of pear-shape, about 6 inches in length and 3½ inches at base. An ulcer of similar shape was on the inner side of the right foot.

Percussion was noted as impaired at the anterior aspect of the right upper pulmonary lobe.

The sounds of the heart were modified, and tended to be irregular in force and rhythm, with collapsible pulse.

In the left groin and on the penis were cicatrices .

On September 29th, the ulcers were cleaner, but still discharging; and, on October 27th, the ulcers were healing and the cavities filling up.

The pulse was regular and the cough slight at this times; at the end of November the ulcers were healed and the cough was gone, and he took his discharge contrary to advice.

The ulcers were treated on the usual lines, and he was given calcium iodide and an expectorant mixture internally.

CASE 32.

TERTIARY SYPHILIS.

M. C., aged 53, was admitted to the Leeds Union Infirmary, on October 20, 1908, complaining of pain in the hip- and knee-joints, especially at night.

He was married; and, of the eight children of the marriage, five were dead. One died of consumption, when aged 14 years, and the other four of convulsions in infancy.

He had syphilis at an age not recorded. He drank whisky at times, but had been short of food for some time prior to his admission. He had rheumatism in 1906, and was obliged to give up his work as a slipper-maker in January, 1908. The following

month of March he spent in the Leeds General Infirmary.

Examination showed him to be very thin. The pupils of the eyes were much contracted. He was slightly deaf and complained of headache at the vertex, chiefly nocturnal, and shooting pains.

His breathing was easy, and there was no pain nor cough nor expectoration. The appetite was fair, the tongue furred, and the bowels constipated. Micturition was scanty at times, and was occasionally painful.

The knee-jerks were absent.

The shape of the chest was poor and movement far from satisfactory. The heart sounds gave evidence of a systolic ventricular bruit - loudest at the apex.

Examination of the abdomen revealed nothing noteworthy.

There was a cicatrix on the glans penis.

Amelioration of the symptoms was observed under the exhibition of iodide of sodium, and he took his discharge a month after admission.

CASE 33.

LEG ULCERS: MORBUS CORDIS.

I. W., aged 47, was admitted to the Leeds Union Infirmary, on October 21, 1908, complaining of ulcered legs, etc.

He was married; and, of the six children of the marriage, one died at the age of a month, one at 3 years, and another in his sixth year. The other three were still living.

He denied having had syphilis. His left leg had been "bad" for fifteen years, and the right one for five years. He had not been short of food, but had eaten few vegetables. He had taken a "good deal of drink" - four pints of beer and some spirits before breakfast.

His legs had sometimes been much swollen towards evening. He had had indigestion, and his skin was sallow.

Examination of the nervous system on admission yielded nothing noteworthy. His breathing became short on exertion; he had a cough with mucous sputum.

His tongue was dry and gave evidence of syphilis.

There was a large, clean-cut ulcer on the lower third of each leg, and a small ulcer on the inner side of the left ankle.

The shape of the chest was good, and there was increased dulness over the manubrium sterni. Cardiac dulness was increased out to the nipple, and there was a bruit with the first sound - apex and base.

There was a sore on the left foot over the internal malleolus for about fifteen years, and it had never quite healed; there was another sore on the antero-lateral aspect of the lower third of the same leg. It commenced very small in 1902, and gradually became larger - having increased rapidly during the previous six or seven months.

The tibiae were very much hypertrophied and curved forward. He had had noticed the bending one or two years. There was also hypertrophy of the femur with some tenderness thereof, as well as in the clavicle; he suffered from dizziness and had a mucopurulent expectoration.

On November 14, 1908, the ulcers were gradually healing. The pigmentation of the legs was unchanged. There was profuse expectoration; the arteries were thickened and calcareous. He had occasional crops of pustules om his back.

On November 18th, the clavicle was tender to the touch.

On December 2nd, sphygmography showed increased tension of the arteries.

The ulcers were treated in the same manner as those already described, and he received potassium iodide (gr.v.) and mist. tuss. alk. (℥i.) every four hours. He is now (3/5/09) doing light work.

CASE 34.

SYPHILITIC ULCERATION.

A. M., aged 29, was admitted to the Leeds Union Infirmary, on October 22nd, 1908, complaining of an ulcer on her left forearm of a few months' duration.

She was married three years ago, had a miscarriage twelve months ago, and had a "weakly" child two months old. She was never addicted to drink and had never had any illness. Her

husband was a drunkard and could not be described as faithful. Six months before admission she had a "bad sore-throat".

The only lesion that careful examination revealed was an irregular ulcer of the forearm in its upper third. It was partly healed and showed cicatricial tissue of a syphilitic character.

She was kept in bed, and the arm was treated with boracic fomentations until it showed signs of healing. She also got a course of mercurial pills during her stay in hospital. She took her discharge on October 30, 1908, but the ulcer was not entirely healed.

CASE 35.

MORBUS CORDIS: GLYCOSURIA.

T. J., aged 61, was admitted to the Leeds Union Infirmary, on October 30, 1908, complaining of headache, dizziness, and excessive thirst.

He had been a labourer and had not married. He had been a drunkard, had syphilis at the age of 30 or 31, and had "rheumatism" ten years later. The sight and expression of the eyes were normal on admission, but the patient's walking was bad.

There was dyspnoea on exertion not attended by pain. He had a cough with expectoration.

The patient's appetite was poor, the tongue dry, the bowels acting, and the urine excessive in quantity - passed often by day and by night.

An eruption was manifest on the legs on admission and a similar eruption appeared on the arms shortly after. The skin of the body was dry. Examination of the thorax revealed nothing abnormal beyond a ventricular systolic murmur in the heart.

There was a sore on the penis and a cicatrix in the right groin.

On November 20th, he had no pain; his sleep was natural, and there was no sugar in the urine.

On November 25th, he had less headache and his appetite was improving. His temperature rose at night, and he had a slight cough. Four days later the headache was slight, and there

was no sugar in the urine.He could walk much better. The eruption on the arms had gone. He was passing a fair quantity of urine. He slept naturally, but he was breathless on exertion.

On December 10th,there was dulness and increased vocal resonance at the right apex.

The patient died,on February 18,1908, of pneumonia.

Before the advent of the fatal complication just mentioned,the patient was given potassium iodide (gr.xxx.per diem), but forthwith on its appearance he was prescribed the following:

R/

Liquor.ammon.acet.,3i.

Potass.iodid.,gr.v.

Aq. ad ℥i.

M. Ft.mist.

Sig.- ℥i.3 hrs.

Furthermore,hypodermic injections of strychnine were given according to indications.

CASE 36.

TERTIARY SYPHILIS:ENLARGED TIBIA.

W. P. was admitted to the Leeds Union Infirmary,on November 11,1908, complaining of pain in the left leg,weakness, and shortness of breath.

He had worked as a shoemaker and had been a widower "for ten or twelve years". He had disease of the knee about forty years before 1908,and had the thigh amputated.He had syphilis at 25 years of age.He had not been very steady,but had worked until a week before admission.For five or six weeks prior to admission his left leg had ached up the bone,and there was some oedema.The skin over the part was broken,some three or four years before,for a week.He was not short of breath,but had pain in the tibia,especially at night.

Nothing worthy of record was observed in his nervous system;he did not cough;his appetite was good and his bowels

regular;but during micturition the stream was small and slow.

The lower third of his left leg bore a cicatrix,and there was some tenderness and slight enlargement of the tibia.

Examination of the thorax and abdomen revealed nothing beyond an increased dull note over the heart;and there could be seen a cicatrix at the end of the prepuce.

This patient was discharged on November 18,1908,at his own request,not being satisfied with his progress.

CASE 37.

TERTIARY SYPHILIS.

J. W.,aged 50,was admitted to the Leeds Union Infirmary, on November 19,1908,complaining of swelling and pain in the right leg.

He was a labourer and had not been married. He had syphilis in 1898.Two or three years later his left arm was scalded. Six months prior to his admission above named,he had been in this Infirmary with a bad leg.About the first week in October the right leg was painful and began to swell.There was no history of injury to the leg.The pain was worse at night.

The eyes showed arcus senilis.The breathing was easy and without pain.There was a slight cough,but no expectoration.

The appetite was good,the tongue furred,the bowels constipated,and micturition normal.

The left arm showed a scar;and there was a painful,tender, inflamed swelling over the upper third of the right tibia, which was greatly enlarged in that locality.Slight oedema appeared in the right leg,which also presented an example of hallux valgus.

The shape of the chest was flat,with movement fair and percussion and palpation impaired.There was a very slight systolic ventricular murmur at the apex of the heart.

This patient was discharged improved on November 30,1908, having benefited from the following mixture:

R/

Potass.iodid.,gr.x.
Liq.hydrarg.perchlor.,3i.
Aq. ad ℥i.
M. Ft.mist.
Sig.- ℥i.t.d.s. p.c.

CASE 38.

CEREBRAL DISEASE.

E. H., aged 63, was admitted to the Leeds Union Infirmary on December 11, 1908.

He had been a painter, but had never married.

The account he was able to give of himself seems to have been meagre. He had syphilis at a period not stated. The right arm was hurt when he was seventeen years of age, and it wasted afterwards. The took drink in his younger days.

He had been strange in manner for some time previous to admission, and he wandered in his mind at night. (It may be presumed that this statement was obtained from some person who knew him.) His speech was affected, hesitating, and difficult.

Micturition was not involuntary.

The right arm was much wasted, and some contraction thereof was observed.

The reflex of the right knee was exaggerated, and the left appeared to be rather sluggish.

Cicatrices were present in both groins and on the fraenum.

On January 11th, the cerebral condition was obviously getting worse.

On February 23rd, he was incontinent and constantly trying to get out of bed.

On April 22nd, he died.

This patient got a course of bromides and iodides, and at first reacted well thereto, but he gradually sank and succombed.

CASE 39.

CEREBRAL DISEASE.

W. S., aged 58, was admitted to the Leeds Union Infirmary, on December 12, 1908, complaining of want of sleep.

He had been a striker and was married, but he did not live with his wife. There had been eleven children of the marriage, of whom nine died young. He said he had been married since the death of his first wife.

He had been in the army for six years, and had syphilis in

some part of that period.He had ague in India "twenty-five years ago - say,in 1885.He had been accustomed to take a fair amount of alcohol. (His father said that he"had been a heavy drinker.") But he had not been short of food.

For two or three nights preceding his admission he had not slept.

The expression of his eyes was dull,the voice husky,the memory defective,the mental condition doubtful,and he complained of dizziness.

His breathing was easy and effected without pain. There was a slight cough with slight discharge of sputum.

The appetite was fair.The tongue was large and tremulous. The bowels were confined on admission,but micturition was ordinary.

The shape of the chest was fair and the movement also. There was a bruit with the second sound of the heart.

No abnormal abdominal signs were observed.

There was a cicatrix on the fraenum.

The patient was discharged improved on January 18,1909.

Symptomatic treatment,sedatives,along with the regulation of the bowels,improved his condition.No iodides were administered.

CASE 40.

CEREBRAL DISEASE:PULMONARY TUBERCULOSIS.

W. B.,aged 67,was admitted to the Leeds Union Infirmary,on January 6,1909,complaining of weakness and cough.

He had been a pattern-maker and had been married thirteen years,i.e.,he had married at 54 years of age.One child of the marriage was living at the time of his admission,aged 10 years and 11 months.

He had sustained some injury in "accidents" and had syphilis when 24 years of age.He professed to have abstained from alcohol for a number of years.

About six months prior to his admission,he began to cough and was conscious of becoming weaker.His eyes were dull and lacking in expression,when examined in the Infirmary; and his

speech was thick and indistinct. His breathing was short, but without pain. He had a troublesome cough, but there was no expectoration.

His appetite was fair, the oral cavity edentulous, and the tongue large, raw and convoluted.

The lower limbs were an example of genu varum, with thickened tibiae. Bed-sores were in evidence over the sacrum, and the skin over the prominences was inflamed.

The shape of the chest was poor, but movement was fair. The right and left upper lobes were dull and the lower impaired. Auscultation of the lungs (anterior) disclosed râles and rhonchi. The heart's sounds were regular. Enlarged glands were noted in the groins, and the right groin showed a cicatrix.

On January 8th, he was very restless and had been incontinent for some days. His wife said that he had been failing during the past three years. He had rheumatism, and was short of breath and could not go out. During the three months just past, he had pleurisy and remained in bed six weeks, unable to sit or walk. He had been a "bit strange" for about two months - had talked to himself and been very restless at times. He had no desire for food.

On January 24, 1909, he died.

Treatment.- Antituberculous: sedative cough mixture, ergotin, fresh air, and generous diet.

CASE 41.

EMPHYSEMA: UMBILICAL HERNIA.

N. C., aged 68, was admitted to the Leeds Union Infirmary, on January 9, 1909, complaining of pain in the body, shortness of breath, cough, etc.

He had worked as a labourer. His wife had died twenty years ago from "something in the bowels". They had no children.

He had syphilis when 18 years of age, and he had cough, for the past six or seven years, every winter. He had taken drink, but not to excess. About a fortnight before admission he suffered pain in the body. His bowels did not act for six or

seven days. He had been very short of breath all the winter; he had expectoration unaccompanied by blood.

Examination revealed nothing abnormal in the nervous system. The breathing was short and without pain, and his cough raised a mucoid sputum.

The tongue had marked evidence of syphilis.

There was no vomiting, and the bowels had moved the day prior to his admission.

Hyper-resonant was the note obtained on thoracic percussion. Râles and rhonchi were heard in the lungs with prolonged expiration. The cardiac sounds were faint.

The superficial veins of the abdomen were dilated. There was a small and easily-reducible umbilical hernia. The opening was very small, and the edges therof were thin.

The right groin bore a cicatrix.

On February 8th, there was a purulent sputum and dulness behind the left scapula; symptoms of phthisis have supervened, and the patient is at present (3/5/09) comparatively well.

He was treated for emphysema and bronchitis at first, but is now being treated for phthisis pulmonalis.

CASE 42.

HEMIPLEGIA.

A. G., aged 48, was admitted to the Leeds Union Infirmary, on January 11, 1909, complaining of loss of power of the left arm and leg, which was first noticed three days before his admission.

She was a widow, had had four children, and earned her living as a housekeeper.

Seventeen years ago she had a "stroke" which affected her right side, and every winter she had a cough. She had never taken much alcohol.

She could not move her left arm on admission, but could move her left leg slightly. She complained of headache and dizziness.

The respiratory and digestive systems were normal.

The heart's sounds were irregular in force and rhythm, and

the second sound was reduplicated.

The urine contained albumin.

There was no cause evident to account for the hemiplegia and, as she was not a virtuous woman, syphilis was assigned for the origination thereof.

A course of antisyphilitic treatment improved her condition, and she took her discharge a few days after her admission.

CASE 43.

HEMIPLEGIA.

I. H., aged 27, was admitted to the Leeds Union Infirmary on April 6, 1909.

She was a married woman and her time was occupied with housework; she had one child living and had had neither miscarriages, still-births, nor other living children. Her moral character by not above suspicion, but she denied ever having had syphilis. She had never tasted alcohol. Her previous health had been excellent, and she was quite a stranger to rheumatism and scarlet fever.

Three days before admission she "suddenly" lost the use of her right arm and leg and found that her mouth was twisted. She was unable to get about.

On admission, it was found that she could not use her right arm or leg, that she was deaf and dull, and that her pupils were unequal There was practically no power in the right arm and leg. The right knee-jerk was elicited very easily, while the left one was less easily obtained. Ankle clonus was present. The tibiae were not thickened.

The right pupil was more dilated than the left, and both reacted to light and accomodation.

Her mental condition was not normal. She was dull and stupid and could not talk properly.

The deafness was partial and had only come on since the seizure.

The respiratory system presented no abnormalities. There were no cardiac or vascular changes discoverable. The teeth were

irregular and decayed,and the bowels were constipated. Her throat was normal,but had been affected some months ago.

There was a purulent vaginal discharge.

She was put on an antisyphilitic treatment,and the hemiplegia and other symptoms gradually improved. On April 19th, she could use her arm and leg,could talk well,and was bright and cheerful.

CASE 44.

SYPHILIS.

A. C.,aged 34, was admitted to the Leeds Union Infirmary,on February 26th,1909,complaining of a painful condition of the mouth,with pain in the joints and limbs.

He had syphilis two years before admission and was circumcised at that time.

He had"taken some drink in his time",but lately had been short of food.

Examination of the nervous system showed motion to be "bad".The voice was husky and the patient complained of headache and dizziness.

The breathing was easy.There was pain in the chest at times,but no cough or sputum.

The appetite was fair.The oral cavity was ulcerated,the tongue furred,ulcerated and painful,and the throat was inflamed. A rash appeared on his chest,and there was a scar on the right side of the neck.

Examination of the thorax revealed nothing abnormal;the cardiac sounds were regular. The abdomen was equally barren of phenomena.

A cicatrix was present on the penis.

The patient was discharged,on March 5th,1909,after having been relieved by antisyphilitic treatment.

CASE 45.

VERTIGO.

W. W.,aged 54,was admitted to the Leeds Union Infirmary,on

March 12,1909,complaining of dizziness,headache,backache,and cough. The breathing was easy and the cough slight.

The patient could eat fairly well. The tongue was large, furred,and characteristic of syphilis. The bowels acted regularly and micturition was normal.

The skin bore no mark save a cicatrix in the left groin.

The heart's sounds were regular and slow; no bruit could be heard.

On March 15th,he had a rigor and the temperature rose to 105.4.F.

On March 29th, he was discharged.

His condition was treated with five-grain doses of sodium iodide,every four hours,and he left here much relieved thereby.

CASE 46.

SYPHILIS.

W. W.,aged 36, was admitted to the Leeds Union Infirmary, on July 16,1908,complaining of pains in the head "one after the other";also of a feeling of pressure at a spot which was tender on the top of the left side of his head.He always slept well.

He had worked as a labourer in a foundry and had not been married.He had been in the army two years,but was invalided on account of rupture. He had been operated on for hernia on both sides,and he had suffered from syphilis two or three years before his admission. For the last four months he had not been able to get any work.

He had a cough,with some irritation in the throat and slight sputum.

The appetite was good,the breath foetid,and the bowels open.

The knee-jerks were active.

The skin of the abdominal wall showed a brownish discolouration.

From the right lung,anteriorly and posteriorly,came an impaired note,and there was increased vocal resonance in front of the right lung.

The cardiac sounds were regular.

A scar appeared in the right groin from hernia. The right testicle had not fully descended. There was also a scar in the left groin and no testicle could be felt.

On July 20th, he complained of smarting pain on the top of the head, spreading to both sides, but especially to the left. He had complained of this for five weeks when it came on quite suddenly. He blamed the "bad disorder" for it. He still complained of giddiness at times, but was discharged on July 24, 1908.

Potassium iodide, in ten-grain doses three times a day, and pil. hydrarg. c creta (gr. i.), three times a day, were administered.

CASE 47.

PARALYSIS: DISSEMINATED SCLEROSIS.

S. R., aged 59, was admitted to the Leeds Union Infirmary, on July 2, 1908, complaining of numbness and loss of power of the limbs.

His calling had been that of a spinner, but for the last twenty years he had been a publican. His wife had died of "heart failure". Three children of the marriage were at the time of his admission still living. He professed to have had no serious disease before the commencement of his present illness. He denied having acquired syphilis, and claims to have been temperate in his consumption of alcohol.

About two years before his admission, he found himself affected by a numbness of the right hand, and this he attributed to driving on a cold day. This numbness became worse; and, within two months from being first affected, he had lost the use of his right hand. Four or five months later, he was conscious of weakness of the left knee. The entire limb became weaker, and he could not use it for locomotion. The right leg was weaker than it had formerly been. The left arm began to be numb and weak about six months before his admission, and he could now scarcely use it. Pain began in the middle of the back about a month ago, but for four or five months he had not walked alone.

Examination of the eyes showed the sight to be good, with slight lateral nystagmus. His speech was thick and indistinct and

had been so affected about a month.

The breathing was easy, without pain or cough or sputum. He could eat well. The condition of the buccal cavity suggested syphilis, and the tongue was large and furred and tremulous. The bowels acted regularly, and micturition was normal.

The power of grip of the right hand was absent, and that of the left was very slight. There was practically no power in his arms; he was not able to raise them. The reflex of the left knee had ceased, and that of the right was very sluggish. Both legs showed oedema, but both were fairly strong. The ground felt "all right under his feet". The muscles of the upper limbs were flabby; but those of the lower limbs were good, and the sense of touch in the arms and legs was normal.

On July 13th, the patient had no headache or dizziness; he experienced no difficulty in micturition, although he would sometimes pass no water for twelve hours. The bowels were rather constipated, and he had pain in all his joints on movement.

On July 28th, he complained of severe nocturnal pain all over.

On October 16th, the patient suddenly died. Softening of the cerebral substance had begun, causing unconsciousness and fatality.

No treatment influenced the condition, except antipyrin and antifebrin and phenacetin, which were used for the pain.

CASE 48.

EMPHYSEMA: BRONCHITIS, ETC.

T. W., aged 61, was admitted to the Leeds Union Infirmary, on July 7, 1908, complaining of cough, shortness of breath, swelling of the legs, etc.

He had been a labourer and had not been married. He had had no disease prior to this date, except syphilis, when aged 18, and ulcers of the legs about two years before coming to this Infirmary. About a fortnight before his admission he began to cough and spit and to suffer from shortness of breath. The legs had been swollen, but for how long he could not say.

Examination showed his breathing to be short and rapid. He complained of a "tickling sensation" accompanying respiration. He had a troublesome cough, but expectoration was scanty.

His appetite was good, the condition of the tongue fair, the bowels regular, and micturition ordinary.

Both legs showed oedema, and the lower third of each leg showed discolouration from an old ulcer.

The shape of the chest was fair, with movement fair and resonant to percussion and palpation; but rhonchi and râles were audible all over the lungs in front and behind. The cardiac sounds described as "distant, faint, modified, and regular".

The left groin bore a cicatrix.

The patient took his discharge on July 16, 1908.

An alkaline cough mixture, with digitalis and spirits of ether, improved his condition wonderfully.

CASE 49.

PULMONARY TUBERCULOSIS.

J. D., aged 36, was admitted to the Leeds Union Infirmary, on July 16, 1908, complaining of cough and expectoration of two years' duration. About twelve months before his admission, he had spat blood. He did not sweat much, but was losing flesh and generally getting worse.

Three years before his admission he tried to commit suicide by cutting his throat. The mental condition which caused this he attributed to drink, which he had taken freely.

His breathing was short, and he complained of sternal pain. His cough was troublesome, and the sputum was streaked with blood.

He could eat little. The appearance of the tongue was fair, the bowels regular, and micturition ordinary.

Percussion on the right side of the chest gave an impaired note. Rhonchi were heard all over the lungs, and both organs crepitated behind. The cardiac sounds were regular.

On August 3rd, the cough was very troublesome, the sputum purulent and abundant, and the breathing rapid and short and difficult. He sweated at night and had a hectic flush. The

bowels were constipated. There was dulness in front of the right lung and râles all over, also dulness and increased vocal resonance and crepitation on the posterior aspect of that organ.

This patient died on August 3, 1908.

Antituberculous treatment, with symptomatic treatment as required, failed to do good.

CASE 50.

MORBUS CORDIS: LEUKOPLAKIA.

C. L. B., aged 68, was admitted to the Leeds Union Infirmary, on August 28, 1908, complaining of vomiting and shivering.

He had been a painter. His wife was dead. They had one child, a daughter, then living.

He had lead colic twelve months before his admission. He had syphilis at the age of 28 - "about 40 years ago". He had spent the winter of 1907-08 in the workhouse, and had again become an inmate about three weeks before the commencement of the illness of which he now complained. On the day preceding his admission (i.e., August 27th) he began to vomit and shiver on getting out of bed, and could "hardly stand on his legs". He had become thinner.

Nothing abnormal was recorded of the nervous or thoracic systems. The tongue was affected with leukoplakia. The outer parts of the dorsum of the tongue had a smooth, shining, pearly appearance with the middle parts convoluted.

A systolic bruit was hear at the apex of the heart.

Cardiac dulness was increased outwards.

The patient was transferred to the workhouse on Septmeber 9, 1908.

The tongue was treated with potassium chlorate and glycerine and borax, and gradually improved. The teeth and mouth were kept in the best possible condition. No other treatment, beyond rest in bed, was required.

CASE 51.

LEG ULCER, ETC.

M. G., aged 67, was admitted to the Leeds Union Infirmary, on October 22, 1908, complaining of ulcered leg.

His wife was dead, as were also two of the three children born to them.

He had smallpox at a period not defined. He had syphilis about the year 1878 when in the army. He had taken "some beer", and had not always sufficient food.

The illness of which he complained on admission began about two months before, when he scraped some of the skin from his left leg - this resulting in ulceration.

Examination of the nervous system revealed nothing abnormal; the breathing was easy, and there was neither pain nor cough nor sputum.

The appetite was good, the tongue furred, the bowels regular, and micturition normal.

On the second finger of the right hand was a whitlow; there was a scar on the dorsum of the left foot and a large, deep, irregular, foul, discharging ulcer on the inner aspect of the lower third of the left leg - this ulcer being very painful and surrounded by an inflamed and oedematous area. A rash appeared on the body, and there was a cicatrix in the right groin. The thoracic and abdominal signs were barren of significance.

On October 27th, the ulcer was clean and without discharge, and the finger healing.

On November 2nd, he had a rise of temperature, with headache and pains in the limbs.

On December 1st, healing had not yet taken place in the ulcer.

This patient was discharged on December 16, 1908. The ulcer was healing slowly under routine treatment, but has not entirely healed when he took his discharge.

CASE 52.

TERTIARY SYPHILIS: MORBUS CORDIS.

T. W., aged 54, was admitted to the Leeds Union Infirmary, on

November 11,1908,complaining of pain and swelling of the left foot. He was very thin.

He had worked as a platelayer and had not been married. He had suffered from rheumatism for three or four years.He had syphilis when about 34 years of age,and he was treated for the same during a period of ten months by various practitioners.For twenty years he had worked for the Midland Railway Company; but, in later times food had been scarce,and he had been temperate in the use of alcohol.About fourteen days before his admission the trouble already referred to began in his left foot. He could not get about and the foot became worse.

Examination of the nervous system revealed nothing worthy of record.The breathing was easy,and pain and cough and sputum were absent. The appetite was fair,the tongue clean,and the bowels acting normally; micturition,however,was difficult.

The shape of the chest was flat and movement ordinary; a ventricular systolic murmur was audible at the apex of the heart; the abdomen presented no abnormalities;and there was a cicatrix in the right groin.

Further examination on November 16th disclosed a bruit with the first sound at the apex and base. There was also a scurfy condition of the palm of the left hand,which the patient said existed there for nine years.

This patient,at his own request,was discharged on February 10,1909.

Sodium iodide,in ten-grain doses three times a day with seven grains of antifebrin occasionally,gave some relief to his symptoms.

CASE 53.

DIARRHOEA,ETC.

C. B.,aged 62,was admitted to the Leeds Union Infirmary,on May 28,1908,complaining of headache,sickness,diarrhoea,and thirst.

His occupation had been that of a painter. He had been married,and three children had been born of the marriage; but

his wife and all the children were dead. He had served in the army and had cholera and ague in India. He had syphilis more than twenty years before the date of his admission to this Infirmary. In Malta he suffered from Malta fever; stricture had troubled him since then. He had taken a fair amount of food. The illness of which he complained on admission had commenced about four days before. He now complained of slight headache, but not of dizziness.

Examination showed that the breathing was easy; but he complained of pain across the chest. There was no cough and no sputum. His appetite was fair and the tongue furred. The action of the bowels was loose, and the ordure was said to resemble mint-sauce in appearance.

The shape of the chest and its movement were good, and the cardiac sounds were regular.

The diarrhoea disappeared under the influence of a milk diet and bismuth. As soon as relieved, he took his discharge.

CASE 54.

BRONCHITIS: MORBUS CORDIS: RENAL DISEASE.

G. I., aged 60, was admitted to the Leeds Union Infirmary, on July 30, 1908, complaining of bronchitis, etc.

He had worked in the straw-hat trade and had also been a hawker. He married when about 20 years of age, but prior to that event he had suffered from syphilis. His wife and two sons of the marriage were living, and in good health, on the date mentioned. When aged about 48, he was in the Leeds General Infirmary with swollen legs. He stated that he had been temperate and steady, and he described the illness from which he was then suffering as due to several colds, "one on top of another", acquired during the past month.

Examination showed arcus senilis present in the eyes; and the left pupil was larger than the other. He complained of headache and dizziness. His breathing was short at times; he coughed a little, but no sputum was raised.

The tongue was large; his bowels acted in normal fashion;

but micturition was copious - sixty ounces in twelve hours.

Râles could be heard over the bases of the lungs. Cardiac dulness was increased outwardly, and there was a bruit with the first sound at the apex.

On August 3rd, thickening of the arteries was noticed. He said that he was not passing so much urine. Two days later, he daily quantity averaged fifty ounces per diem.

On August 16th, a chronic granular condition of the eyelids was observed.

On August 24th, the lungs were full of râles.

This patient took his discharge on August 26, 1908.

During his stay in hospital, he was not relieved much, and his discharge was granted at his own request.

CASE 55.

SYPHILITIC ARTHRITIS.

J. W., aged 45, was admitted to the Leeds Union Infirmary, on January 11, 1908, complaining of swelling of the dorsum of the left foot which had made its appearance a few days before. This had been followed by swelling of the right and, subsequently, of the left. The joints were swollen, red, and painful.

He had been a pattern-maker and was unmarried. His father had been intemperate and rheumatic. Eighteen months before the patient's admission his left great toe was red and shining. He was then ill for weeks; and he had had four or five attacks of that kind, the first when his age was 35. But he had syphilis when 32 years old; and the "gout", as he designated the trouble in the toe, began three years later. He was brought up in a public-house and consequently had not been temperate with alcohol.

The illness of which he complained on admission began a few days before with swelling of the dorsum of the left foot. Following this the right knee became affected, and then the left knee. The joints were swollen, red, and painful.

His eyes showed unequal pupils. His appetite was fair, the tongue furred, and the bowels regular. Micturition was ordinary.

Both legs showed slight oedema. Both knees were painful, swollen, and slightly red, as also was the left ankle.

This patient was transferred to the workhouse on February 12, 1908; but, three days later, the knee trouble returned and necessitated his readmission to the Infirmary; and on February 17th there was effusion in both knees, the left ankle, and dorsum of the left foot and toes.

He was discharged on March 6, 1908.

On each occasion he was treated with five-grain doses of potassium iodide and ten-minim doses of colchicum wine every four hours, and the condition disappeared. The joints were protected with cotton-wool, and he was kept in bed.

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---------I N D E X.---------

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