

## CURRENT LITERATURE

*It is intended that the current literature of leprosy shall be dealt with fully in this department. It is a function of the Contributing Editors to provide abstracts of all articles published in their territories, but when necessary such material obtained from other sources is used.*

REENSTIERNA, J. A short account of an anti-leprosy serum and its therapeutic value. *Upsala Universitets Arsskrift* 2 (1941) 32 pp. 10 pl.

This paper was written by the author in his capacity of dean of the Faculty of Medicine of Upsala University, in connection with the 200th anniversary of the great Linné's nomination to the chair of practical medicine. The paper surveys the trials with his antileprosy serum during the years 1933-40. In an attached letter of invitation (in Swedish) are also given some interesting glimpses of the botanist Linné as a medical scientist. In his *Hexanthemata Viva* (1759) and *Mundus Invisibilis* (1767) Linné announced the conviction that very small living creatures, "animalcula viva," are the causative agents of such diseases as scabies, plague, syphilis, tuberculosis, dysentery, and smallpox; and he went on to say, with prophetic acumen, that "our descendants, with greater accuracy than ours, will unveil the real nature of these small animals." With regard to leprosy Linné, who had followed the observations made by his pupil A. Martin in western Norway (in his paper "Lepra," 1765), put forward the theory that this disease is caused by a worm, *Gordius marinus*, which parasitizes on fishes and is spread by the coast population.

—J. SCHAUMANN

[MISSION TO LEPERS] The Sixty-sixth Annual Report of the Mission to Lepers, 1940.

The work of this organization has been continued unabated by war conditions. The 45 homes accommodate 9,971 inmates, and there are 6,916 in 47 aided homes, mostly in India, China, and Africa. No less than 1,392 healthy children of lepers are cared for apart from their parents. The expenditures during 1940 amounted to £72,046 and the income to £74,814.— [From abstract in *Lep. Rev.* 12 (1941) 64.]

[MISSION TO LEPERS, INDIA]. Report of the Sixty-sixth Year's Work in India and Burma, September 1939 to August 1940.

In the general section of this report the influence of war conditions on the work and finances of the Mission is discussed. As yet the private contributions from abroad (4 lakhs of rupees) have been maintained, though it is anticipated that they may be appreciably reduced, with serious effects. Those from India, although showing an increase, amount to a little more than one-tenth of this figure, and nearly one-half of this is from a single donor. A further total of Rs. 24,000 was received in the country in the form of gifts to individual institutions. The need for increased Indian

support is obvious. Provincial government contributions are about 4 lakhs. The total expenditure has been about 8½ lakhs. The 32 homes of the Mission have 7,200 patients and 800 healthy children, and aid is given to 16 other homes with 2,400 patients. Details are given of the work done in these institutions—medical, social, agricultural, educational, industrial, and other activities—together with some additional statistical tables. Mention is made of many needy patients refused admission for lack of accommodation and funds.—[From abstract in *Lep. in India* 13 (1941) 27.]

[B.E.L.R.A.] Annual Report of the Indian Council of the British Empire Leprosy Relief Association, 1939. New Delhi, India.

Steady progress was made in this year in the campaign against leprosy in India. The Madras branch was re-organized as an entity separate from the provincial Public Health Department. The routine propaganda, survey, and treatment work is now carried on by the government, while the provincial branch of the association concentrates on the special work of epidemiological and other research under the general supervision of Dr. R. G. Cochrane of the Lady Willingdon Leprosy Sanatorium. There resulted an increased demand for special training. Research was continued under Dr. Lowe in the Calcutta School of Tropical Medicine, where 1,347 new cases were examined (1,054 neural, 293 lepromatous) and where about 300 cases attend for treatment weekly. The previously reported increase in the clinical and bacillary activity of the disease between April and September has been confirmed. In epidemiological studies in a rural area of Western Bengal and in a Santal colony, the very high proportion of 20 neural to 1 lepromatous case was observed. Methylene blue has been found to have no action on the staining properties or the pathogenicity of the rat leprosy bacillus *in vitro*. In hamsters, splenectomy was not found to influence their susceptibility to infection with the human bacillus. It seems very doubtful if the organisms actually multiply in their tissues, although they persist for a long time and in large numbers in the implanted nodules. The major part of the report is taken up with the activities and accounts of the provincial branches, of local interest.—[From review in *Lep. Rev.* 12 (1941) 30.]

PURULIA LEPROSY HOME AND HOSPITAL. Report of its Fifty-second Year of Service, 1940; Mission to Lepers. (General report by the Rev. E. B. Sharpe, superintendent; medical and nursing reports by Dr. G. B. Archer and Sister E. R. Simpson.)

The work in this institution, one of the best-known and largest in India, is featured by the extent to which inmates engage in productive agricultural work [see also next item]. Despite shortage of rain which reduced the crop, the harvest [of rice?] was nearly 22 tons, besides several crops of pulse. At the annual vegetable and flower show there were 35 exhibits. This and other work makes for real occupational therapy that is beneficial to the whole community, as well as to the individuals concerned. On the medical side an experiment with increased frequency of injection (twice weekly) and higher dosages of hydnocarpus oil (25 cc. a week being the amount aimed at), has been continued with an increased number of patients (120). The results have been encouraging; no tendency to increased frequency of lepra reaction is seen when due care is exercised. Patients who have recurring reactions are being treated (advice

of Cochrane) with very small doses of the oil intradermally, increasing only 0.5 cc. per month; several have been gotten onto larger doses without reaction, though with others the attempt has not been successful. Of the inpatients (average 703 adults and 95 children, besides 78 resident healthy children), 68 were discharged as symptom-free—there being some difficulty on account of unwillingness to return to their homes and of the 1,000 and more outpatients 182 were dropped as no longer needing treatment—with some resentment on their part. A two-weeks' training course was given for outside physicians sent by the District Boards of the province to prepare them to take charge of outpatient clinics in the areas.

—H. W. W.

- BEVAN, E. L. The Dichpali Leper Settlement Farm; Annual Report for 1938-39.

At this well-known leprosarium in India a great deal of attention is given to farming, and this report is of that activity. Particular emphasis is laid on tillage and manuring in this work. Their value was especially demonstrated in the year under review in that, though there was so serious a drought that the rice had to be grown as a dry crop, the yield was better than others in the neighborhood. Though the yield of vegetables was barely one-half of that of the previous year, the total amount of fruit and vegetables harvested was 35 tons. The paddy crop was 11 tons; the millet crop failed completely because of excessive rain when it occurred. All such materials grown are turned over to the hospital for use there. Of fodder crops, paddy and millet straw amounted to 71 cartloads; of four others there were some 20 tons. Sugar cane, grown as a commercial crop and mostly sold, totalled 72 tons. A new farm well was fitted with a Persian wheel, which was of great help in irrigating during the period of water shortage; bullock water-lifts are also used at cisterns. Huge quantities of green materials, weeds, grass, leaves, and vegetable rubbish, are collected both within and outside the institution grounds to supply three compost "factories." Leguminous crops are grown both for fodder and to enrich the soil; of dung there is a shortage. Educational activities have been carried on: a course in elementary horticulture to a group of school-teachers, demonstrations to farmers from neighboring villages, and instruction to some of the older boys of the institution. [This report, with its impressive figures on production, is probably unique among documents emanating from leprosy institutions, and of special interest in connection with the problem of self-support by them.]—[From abstract in *Lep. Rev.* 11 (1940) 183.]

- LOWE, J. AND SANTRA, I. An epidemiological study of leprosy with special reference to the leprosy survey in Santalpur (N. Bengal). *Lep. in India* 12 (1940) 43-54.

The clinical and epidemiological variations of leprosy seen in different parts of the world are briefly discussed, and it is considered that the chief factor concerned in the production of these differences is that of race. The importance of age and type-distribution as indications of the seriousness of leprosy in a community is strongly emphasized. The hypothesis is made that when leprosy is increasing, the proportion of lepromatous cases is usually high, and the incidence in children is relatively high and in old people low; whereas when leprosy is decreasing the proportion of lepro-

matous cases falls, the incidence in children is relatively low and in old people high. Details of a survey of 3,600 Santals in North Bengal are given. The incidence was high (7.4 per cent) but the proportion of lepromatous cases was very low (4.1 per cent); while the incidence in children was relatively low and in adults and old people high. The forms of leprosy were exceedingly mild, and the data indicated that very few of the mild cases later became serious. It is considered that these findings justify the opinion that in Santalpur, in spite of very high incidence, leprosy does not constitute an important health problem. The desirability of further studies along similar lines is emphasized.—[From authors' summary.]

HAYWARD, E. W. Report on the leprosy survey of Jodhpur State, 1937-1939. *Lep in India* 12 (1940) 138-146.

Jodhpur is the largest of the Rajputana states of Central India with a comparatively low rainfall. The census of 1931 showed only 117 cases, and the hospitals showed few attendances for leprosy. Examination of 960,875 persons in 1,029 villages during 1937-1939 revealed 888 cases. The incidence rate, 0.08 per cent, is low, but 44 per cent of all cases were lepromatous, a figure which is unusually high for India. The age incidence was also peculiar with only 5.4 per cent of cases under 14 years and 58 per cent over 40 years. The proportion of males found is high, a fact which is attributed to the difficulty of examining females owing to the purdah system. The author believes that the disease is not decreasing and that the total number of cases in the state is between 2,000 and 3,000. Their isolation being beyond the resources of the state, he advises small colonies in the villages and treatment as outpatients at the existing hospitals and dispensaries.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 456.]

[B.E.L.R.A., BURMA] First Annual Report of the Burma Council, British Empire Leprosy Relief Association.

This report [date not given in the abstract here used] gives details of the activities of the special leprosy officer of Burma in organizing courses in leprosy in the Medical College and postgraduate courses at the Harcourt Butler Institute of Public Health. Special regional surveys have been carried out in selected parts of the country, and with the appointment of the further trained assistants it is proposed to extend this work. A Leprosy Advisory Board is composed of representatives of the government, the Burma Tuberculosis and Leprosy Relief Association, and the Burma Council of the B.E.L.R.A. The Association gives a grant of Rs. 500 toward the initial cost of starting a colony and a capitation grant of Rs. 1 for every leprosy patient living in a colony in Burma. Aid is also given to the colonies in the Shan States. There are eight colonies in Burma proper, two of them started during the year; brief reports of their work are given. Following a visit by Prof. J. Reenstierna, his serum was tried in treatment; the results were not very satisfactory.—[From abstract in *Lep. in India* 13 (1941) 27-28.]

BUKER, R. S. Leprosy in Kengtung, Southern Shan States, Burma. Report of the survey in 1939-1940. *Lep. in India* 12 (1940) 78-82.

In this state, which borders on China and Siam and has a scattered population of 300,000, one-half of whom are Shans, groups of villages inhabited by different races were surveyed during 1939-40. Among slightly

less than 10,000 people examined, 609 cases of leprosy were found, or 6.1 per cent. The Lalu race showed the high rate of 14.2 per cent; the Kachins 8.3 per cent; and the Shans and Kaws 3.6 per cent and 3.3 per cent respectively. Among the Shans, 38 per cent of the cases were lepromatous. In the one Chinese village surveyed no cases were found. In the Shan valley the disease is said to have increased after a famine. It was noticed that the prevalence in the different races in this malarious area was in inverse proportion to the numbers showing enlargement of their spleens. Inquiry showed that all of the affected races eat forms of colocalia to some extent, but it is impossible to say which of the tribes eat most, it is concluded that leprosy is an increasingly serious problem in Kengtung State. There are now 10 colonies which accommodate a total of 1,100 patients on a voluntary basis.—[From abstracts.]

DE SIMON, D. S. Leprosy and its control in Ceylon. *J. Ceylon Branch, Brit. Med. Assoc.* 37 (1940) 171-191.

This paper deals with the progress that has been made in Ceylon since 1932, before which sole reliance was placed on compulsory segregation. Surveys showed that 85 per cent of cases occurred within 5 miles of the coast, the most densely populated part. The survey was followed by efforts to educate the people, training of medical officers in early diagnosis, and the establishment of outpatient clinics for non-infective cases. Arrangements were made for repeated examinations of contacts, and for supervision of discharged negative cases and those permitted home isolation. The number of known cases was raised from 557 in 1921 to 3,648 in 1939, of which 2,548 were found by the surveys; 1,031 infective cases are now isolated.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 456.]

WU, T. C. Leprosy situation in war-torn China. *Lep. Quart.* 13 (1940) 142-154.

The Sino-Japanese war has had an adverse effect on the leprosy situation. Eight of the most heavily affected provinces, with approximately three-fourths of the best organized leprosaria and clinics, are in occupied territory. It may well be that there has been a shift of the leprosy population from one place to another, for when a city is threatened by invasion the patients flee, often traveling by foot hundreds of miles seeking refuge. For example, shortly after the outbreak of hostilities the majority of the patients in the Shanghai leprosarium decamped, and ten of them went, almost penniless, as far as Nanchang, in Kiangse, and Sinhwa, in Hunan, where two affiliated leprosaria were located; but when those cities became too hot they made their way back to Shanghai. The fact that, generally speaking, leprosy is more prevalent and virulent in the south and southwest than elsewhere is ascribed to the hot climate and the mode of living. But climate is not the only factor, for the northern provinces of Shangtung and Kansu are as badly infected as the southern ones, and Tibet and Szechwan, in spite of their cold climate, are not immune from the disease. Nor is the economic standard of people a deciding factor. For instance, in Shansi and Honan most people live in mud houses and under most insanitary conditions, yet these provinces are practically free from leprosy.—[From excerpt in *Lep. Rev.* 11 (1940) 178-179.]

KWAN, L. T. Leprosy in Shensi. A survey of leprosy in the district of Hanchung. *Lep. Quart.* 14 (1940) 147-154.

The author suggests that the trade routes have had something to do with the spread of leprosy in the province of Shensi, China, and that the area dealt with is a new one in which the disease has spread rapidly.

—L. S. HUIZENGA

OLTMANS, S. C. Annual report of work for leper patients in Japan. 1940.

Mrs. Oltmans, who is carrying on the work of her late husband as secretary for Japan of the American Mission to Lepers, reports that the total number of leprosaria has been reduced from 16 to 15 [actually 16; see page 136] two private institutions having been merged with neighboring official ones, while a new national one, the Tohoku Shinsei Byo-in (at Sendai) in the northern part of the main island, has been opened, with Dr. Suzuki as director. The inmates of the well-known St. Barnabas asylum, in Kusatsu, established by the late Miss Cornwall-Legh, have been transferred to the nearby spacious Kuriu Rakusen-en, one of the newer national institutions now with 800 inmates; activities at the former place will be confined to hospital care of the leper village of Yunozawa and to general care of a number of children. At Kumamoto, in Kyushu, the Kaishun Byo-in, established by the late Miss Riddell, has similarly been merged with the prefectural leprosarium Kiushiu Ryoyo-jo. Komyo-en, established on Nagashima island, near Aisei-en, to replace the leprosarium at Osaka destroyed some years ago by a typhoon, has been changed from a prefectural to a national institution, there now being 4 of the former category and 6 [actually 7] of the latter. In general the budgets of the leprosaria have increased 25-35 per cent since 1938, because of increases in the numbers of inmates and in costs. The local auxiliary bodies concerning themselves with the leprosy problems are (1) the Leprosy Prevention Society, a unit of the social welfare department of the central government, the principal aim of which is to aid in prevention of spread of the disease; (2) the Japan Mission to Lepers, an indigenous society with headquarters in Tokyo and related organizations in various other districts, formed about 15 years ago for the promotion of antileprosy work of all kinds, with special emphasis on education and promotion (the Prevention Society working with and through it), and (3) the Kozensha, a Christian group dating back more than 50 years, now with about 30 members in Tokyo interested in the work of the Ihai-en. A phase of the 2,600th anniversary, it is stated, was an effort to intensify hospitalization and to make rare the sight of leprous persons begging on the streets. Increasing emphasis is being laid on remunerative and constructive work by the inmates of the leprosaria, in connection with their rehabilitation.

—H. W. W.

HAYASHI, F. On the curve of the lepers number found at the military conscript. *Trans. 13th Meet., Japanese Lep. Assoc., 1939. La Lepro* 11 (1940) suppl. 76 (abstract).

As is generally known, the numbers of persons found to have leprosy among the military conscripts in Japan have produced a curve which indicates a decrease in the incidence of the disease. This curve, however, has to be corrected, especially in consideration of the increased numbers of young patients in the leprosaria. A corrected curve is shown; and from these new data the number of cases in the country is estimated at about

20,000. Examining the data for conscripts of each prefecture, evident shifts to the left or the right are seen.—[From abstract.]

- TAKASHIMA, S. On the tendency of decreasing of lepers in Japan. Trans. 13th Meet., Japanese Lep. Assoc., 1939. *La Lepro* 11 (1940) suppl. 76 (abstract).

Statistical data collected in Japan have indicated that the number of persons with leprosy in this country is rapidly decreasing. The author has attempted to prove this fact by analytical studies of the numbers of cases of leprosy, their age distribution, and their length of life. It is concluded that the incidence is decreasing more rapidly than is generally assumed.—[From abstract.]

- SITANALA, J. B. Het Probleem der Leproserieën in Nederlandsch-Indië, [Leprosaria in the Netherlands Indies.] *Geneesk. Tijdschr. Nederlandsch-Indië* 80 (1940) 1370-1380.

The author gives a historical sketch of leprosy measures in Netherlands India from 1655 to the present time. He states that there are now 47 leprosaria harboring 4,955 patients. Five of these institutions aim definitely at combating the disease, the others dealing with the leprosy patient from the philanthropic aspect. A table is presented showing how the modern leprosarium differs from those of former days in looking after patients in all stages, in caring for and educating the children of patients, in giving the inmates occupation and useful work, etc.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 28.]

- AUSTIN, C. J. Central Leper Hospital, Makogai, Fiji. Report of the Medical Superintendent for 1939.

After adoption of the Leper Ordinance an asylum was established on the island of Beqa for a few cases. In 1909 the Makogai island was purchased and two years later 40 patients were transferred there from Beqa; the number reached 623 in 1939, 2,269 having been admitted since 1911. Patients are now admitted from New Zealand and its dependencies, from Tonga, and from the Gilbert Islands. Of 1,777 cases whose records are available for study, 42 per cent have died while 26 per cent have been discharged; inactive and improved cases amount to 49 per cent. Of 394 patients discharged in Fiji, 60 (13 per cent) relapsed and were readmitted, but 13 were later discharged again. The admission rate shows little sign of diminution, but cases are now coming in earlier stages. The most frequent causes of death have been debility, nephritis, gangrene or septicemia, tuberculosis, and cardio-vascular disease, in that order. Intradermal injection of chaulmoogra preparations remains the nearest approach to specific treatment. Burns and lepomatous ulcers are treated, successfully and economically, with a mixture of gentian violet, brilliant green, and acriflavine, without bandage. Tables regarding treatment of different races and types of the disease show 66 per cent improved and 39 per cent inactive, varying with type and advancement. The chaulmoogra plantations continue to do well. Attention to improving the social amenities continues.—[From abstract in *Lep. Rev.* 12 (1941) 61-62.]

- [U.S.P.H.S.] (Leprosy; in the Continental United States and Hawaii.) Annual report of the Surgeon General, Public Health Service of the

United States, Fiscal year ended June 30, 1940. Government Printing Office, Washington, 1941, pp. 71-72.

(a) A survey of the problem in the United States has led to the opinion that leprosy, present for at least 150 years and probably much longer, is neither materially increasing nor declining. If the concept is adopted that it runs an epidemic course similar to other epidemic diseases, but covering generations and centuries, it may be concluded that it is now in the plateau phase of an epidemic curve. Why it found conditions favorable for spread only in the Gulf Coast states, while elsewhere it has tended to self-extinction, remains a most baffling and important problem. Minnesota and California exemplify the areas where the infection dies out in one generation of the native-born. Even more puzzling is the small number of cases (possibly five) developing far from an endemic focus and without known source of infection. There are interesting localized foci in the extreme southern parts of Florida and Texas, in each case doubtless related to proximity to foci in neighboring countries. There is no indication that the strains of leprosy coming from different foreign areas differed in any way from one another. Regarding the question of efficiency, or lack of it, of attempts to control the disease by isolation, if the disease does not spread in an area isolation is obviously not necessary. No area is available from which adequate data may be obtained for an appraisal of the value of control measures. (b) At the leprosy investigation station in Hawaii, among other things, attempts were made to grow *M. leprae murium* on 130 different media made from extracts of tissues with the addition of various supposedly growth-promoting substances. In continued efforts to infect rats and mice with human leprosy, using various methods to lower resistance, the results have been negative. Many biopsies are now made, because they are required for accurate type diagnoses. Bacilli were sometimes found in sections when smears were negative; biopsies are now taken before cases are presented for temporary release. Thiamin chloride was administered to approximately 20 patients with neuritis and gave alleviation of pain within 24 to 48 hours in nearly every instance. —H. W. W.

COT LESMES, V. [Leprosy in Santiago de Cuba] Rev. Med-Quir. Oriente (1940) Sept.

Among 250 patients with skin and syphilitic affections, the author found 30 with leprosy (12 per cent), 43 per cent of the neural type, and 57 per cent lepromatous or mixed. Of the adults, 73 per cent were open; of the young, 50 per cent. The extraordinarily large number of open cases indicates a serious situation. The sex incidence was 1.0:1.0. Negroes predominated slightly (53 per cent); 70 per cent were 29 years of age or younger. Because of the large number of leprosy patients, their contagiousness, and the fact that poverty precludes for most of them the use of chaulmoogra products, the need of an antileprosy campaign is urgent. The hospital which is being constructed in Songo cannot be put into operation before the end of 1941. For the interim the establishment of a dermatological dispensary where the poor could receive free treatment is urged. The local medical school has decided to initiate an antileprosy campaign, for which the cooperation of the local health and other authorities and of the scientific and civic societies is being sought.—[From abstract in *Bol. Of. Sanit. Panamericana* 20 (1941) 849.]



- BONILLA IRAGORRI, G. Algunos comentarios a la ley de 5 de Agosto de 1833. [Comments on the law of August 5, 1833.] *Rev. Colombiana Leprol.* 2 (1940-41) 135-139.

Observations are made regarding the law promulgated by the Senate and the House of Representatives of the state of New Granada, more than a century ago, and on the executive decree issued in 1835 by the President Francisco de Paula Santander. These show how the government has dealt with the problem of leprosy, since the early day of the Republic of Colombia. —M. BERNAL LONDOÑO

- ACOSTA ORTEGON, J. Origen del Lazareto de Contratación. [Origin of the Contratación leprosarium.] *Rev. Colombiana Leprol.* 2 (1940-41) 291-304.

This is a study of the formation and history of this Colombian leprosarium, with data on the manner in which leprosy was introduced into the Department of Santander. Data are given of a census taken there in 1778, the results of which led first to the foundation of a leprosarium in Socorro, and later that of the Contratación. —M. BERNAL LONDOÑO

- MEDINA, R. M. Algunos datos sobre el Lazareto de Agua de Dios. [Certain data on the Agua de Dios leprosarium.] *Rev. Colombiana Leprol.* 1 (1939-40) 277-290.

The author gives certain historical data on the foundation of this institution. Leprosy patients, seeking the benefit that they thought they might derive from the sulphurated springs, settled in this location, 13 km. from Tocaima. This was about the middle of the last century; in 1879 there were 300 of them there. The first hospital was constructed in 1888, near the church. The development of the institution from that time to the present is discussed in detail, with data on movements in the first semester of 1939.—[From abstract in *Rev. Brasileira Leprol.* 8 (1940) 221.].....

- RIVEROS, A. M. [Leprosy activities in Colombia.] *Sal. & San.* (1940) May-June.

The number of cases of leprosy discovered in Colombia during the last four years and the number of persons examined in the search for them are as follows: in 1936, 797 among 9,798; in 1937, 834 among 31,297; in 1938, 767 among 31,286; and in 1939, 654 among 55,637. The Guadalupe asylum for healthy children of leprosy patients, near the Contratación colony—the only one constructed entirely with official funds—has a capacity of 250, but a great part of it was destroyed by fire in 1938. The neighboring San Bernardo asylum, erected by the Salesian Fathers, accommodates 400 children and has a nursery with 40 beds. The Daughters of the Sacred Heart, a national community founded at Agua de Dios with the name of the Black Mothers, erected near that leprosarium the Nazaret and Santa Elena asylums with a capacity of 350 children. Also near Agua de Dios there functions, very precariously, a nursery for 45 new-born babies and a newly-constructed building for 100 children. On May 31, 1940, there were 1,013 children in the various establishments. The professional and other personnel are paid by the government, which also provides certain allowances and a per diem of P.33. per child. Provision was made in 1936 for the release of older healthy children from the asylums, under guardianship subject to medical control, with an allowance of 9 pesos

monthly until they reach the age of 15 years; 722 children are receiving this pension. From July, 1938, to May, 1940, 908 children were released from control, 532 from the asylum and 376 of those pensioned to families.—[From abstract in *Bol. Of. Sanit. Panamericana* 20 (1941) 848.]

CHALA H., J. I. and LLERAS RESTREPO, F. Protección infantil en la lepra. Niños sanos del Asilo de San Bernardo. [Protection of children of lepers. Healthy children in the San Bernard Asylum.] *Rev. Colombiana Leprol.* 2 (1940) 230-251.

The authors present the results of an examination of 51 children of leprous parents removed to the institution mentioned. After commenting briefly on the advantages of protection of these children by the state, they cite opinions regarding the high susceptibility of the disease in early infancy and in adolescence, affirming that the direct cause of the danger is cohabitation. Statistical data regarding the matter are given, including an analysis of the clinical histories of the children examined. Attention is called to the fact that only four of the group showed suspicious manifestations, though they had lived with their parents for from 1 to 13 years—the suspicious ones for from 3 to 11 years. It is concluded that the children of persons with leprosy are born healthy and that immediate separation renders the danger of contagion practically nil.—[From abstract in *Rev. Brasileira Leprol.* 9 (1941) 127.]

PATIÑO CAMARGO, L. Instituto Lleras Acosta de Investigació Médica. Objeto de esta centro de investigación, organización tecnica y estudios que se adelantan. [The Federico Lleras Institute of Medical Research. Purpose of this center of investigation; technical organization and studies under way.] *Rev. Colombiana Leprol.* 1 (1939-40) 261-266 and 2 (1940-41) 160-162; *Bol. Of. Sanit. Panamericana* 19 (1940) 773-774.

The title given above is to some extent a composite one prepared from the three items referred to. The first of them deals mainly with the history and organization of the institution; the second—a statement presented at the second annual conference of the physicians of the antileprosy staff in 1940 [see *THE JOURNAL* 9 (1940) 109]—lists the investigations under way; the third is a summary note, one of a series of papers describing the principal scientific institutions in Latin America appearing in the periodical concerned. This institute had its beginning in the Laboratorio Central de Investigación de Lepra, founded in 1934 with Professor Lleras Acosta as its director, and renamed after his death in 1938. This entity has now been provided with a special building, comprising three wings or sections; one houses the administration, clinic, laboratories, library, and museum, one is for hospitalization of patients undergoing special observation, and one is for laboratory animals. The personnel comprises a director, an assistant director, a medical assistant, Sisters of Mercy, and others. The budget for 1940 was 30,000 pesos (about US \$17,140). Besides the two sections mentioned, there is one of bacteriology and one of pathological anatomy. The duties of the institution include supervision of investigative work of physicians in charge of the leprosy dispensaries and the training of personnel. The investigations under way are mentioned, and figures are given for the routine work done in 1939, which included 3,221 Lleras reactions.

—H. W. W.

- PEYRI, A. El censo de la lepra en La Urbana. [Leprosy census in La Urbana.] *Rev. San. y Asist. Social (Caracas)* **6** (1941) 79-105.

This is a report of a survey of a small, autochthonous focus in a municipality in the State of Bolivar, Venezuela, reached after a six-day trip by road and river (the Manapire and Orinoco rivers). Working quietly and gaining the cooperation of the inhabitants, the author found 15 actual cases (two of which were reported to him but not seen) and 4 suspicious ones. Those examined were classified as follows: 2, L2-N3; 3, N3; 1, N2 and 7, N1. Their homes, very poor and miserable, were located on the river; the prevalence was 12.8 per 1000 in the infected neighborhood and 4 per 1000 for the whole municipality. There was no sanitary control, and contact with the healthy people was close and constant.

—H. W. W.

- DE SOUZA-ARAÚJO, H. C. and RODRIGUES DE ALBUQUERQUE, A. F. Alguns aspectos epidemiológicos da lepra no Brasil; a lepra na cidade do Rio de Janeiro. [Certain epidemiological aspects of leprosy in Brazil; leprosy in the city of Rio de Janeiro.] *Acta Méd. Rio de Janeiro* **6** (1940) 63-89.

Reporting an analysis of the records of 528 cases, of whom 82 per cent were white, 10 per cent mixed, and 8 per cent Negro, comprising three groups: (a) native Brazilians, (b) Brazilians of foreign parentage, and (c) immigrants. Of the total, 53 per cent were males and 47 per cent females, a ratio of 1.41:1; but in group (a) the ratio was 1:1, group (b) 1.5:1, and (c) 2.4:1, this last figure explained by the predominance of males in this group. The percentage distribution by age was as follows:

Age	Group A	Group B	Group C
0-20 years	38	45	5
21-50 years	52	46	62
Over 50 years	10	9	33

Thus, among immigrants 95 per cent developed leprosy after the age of 20, which indicates that adults coming from European countries where leprosy has ceased to exist are as susceptible to the infection as native Brazilian children, or more so.—[From author's summary in *An. Brasileiros Dermat. e Sifilog.* **15** (1940) 309-310.]

- MANGEON, G. and MENDES, P. A profilaxia da lepra no estado do Rio Grande do Sul. [The prophylaxis of leprosy in the state of Rio Grande do Sul (Brazil).] *Arq. Dept. Est. Saúde (Porto Alegre)* (1940) **81**; also *Rev. Combata Lepra* **5** (1940) 31-42.

After reviewing the history of the campaign against leprosy in this state, the authors describe the activities which are being organized and offer various epidemiological and clinical comments regarding patients already recorded. There is a central dispensary in Porto Alegre, minor dispensaries at the sanitary posts in the interior, and an emergency hospital for leprosy patients. The leprosarium of Itapuán, of the hospital-farm colony type, 67 kilometers from the capital, with an initial capacity of 450, is almost finished. The Amparo Santa Cruz preventorium, with a capacity of 200 children, which is being constructed by the Rio Grande Society for the Assistance to Lepers, will also be inaugurated soon.—[From abstract in *Bol. Of. Sanit. Panamericana* **20** (1941) 848.]

- Do PATEO, D. Da incidencia da Lepra entre os comunicantes escolares. [Leprosy incidence among school contacts.] *Ann. paulist. de med. e cir.* 42 (1941) 80 (abstract).

Among 5,768 school-children contacts registered by the Leprosy Prophylaxis Service of São Paulo, Brazil, the very high rate of 12.7 per cent has been found. The general census of leprosy contacts in the state (March 31, 1941) involved 45,728 persons, among whom the also high rate of 9.9 per cent was found. In view of these alarming figures the author appeals for closer collaboration with the school health service, and suggests the establishment of a compulsory course in leprosy for doctors of the various services concerned with public health.—[From abstract.]

- SALOMÃO, A. Problemas sociais decorrentes do internamento dos leprosos. [Social problems connected with the internment of lepers.] *Arquiv. Saúde Públ.* 7 (1939) 71-81.

In Brazil, as in other countries, too strict enforcement of the regulations for the internment of leprosy persons causes much hardship and, perhaps, unnecessary suffering. Though many, perhaps most, of them become reconciled to the separation and recognize the necessity for it, the enforced isolation sometimes becomes intolerable and a certain number of inmates run away from the institutions. One-half of such elopements, in Brazil, are attributed to the urge of family affections. Individual examples are given to illustrate the factors which affect patients from the social aspect. One is of a distinguished scholar who had abandoned his profession and sent his children to live with relatives, and who finally entered a colony voluntarily, his wife accompanying him and now living with him. One, a physician who because of the dread of social ostracism when his young brother was found to be leprosy and was sent to an institution, begged the director to relieve the boy of his fate by euthanasia. One, a young lady engaged to be married, who became so embittered when she developed the disease that she might have committed suicide but for religious convictions, found that she could be treated with hope and without isolation. Another young lady actually on her honeymoon when the first manifestations appeared, and who therefore had to leave her husband, also found that internment would not be necessary. Three examples are given of men in isolation who had great need of personal attention for the settlement of business affairs at home; one could not be allowed to go because of the form of his disease and did not, another could be allowed the privilege because he was a pure neural case, and one had to be refused permission but went anyhow.—[From abstract in *Lep. Rev.* 11 (1940) 181, in which it is added that although such cases are met with everywhere, they are cited from this report as indicating how similar are conditions in different countries.]

- DE MORAES MELLO, A. O problema da lepra ante a medicina publica e a situação juridica do leproso isolado compulsoriamente. [The problem of leprosy in public medicine and the juridical situation of the leper under compulsory isolation.] *Rev. Med. Cir. Brasil* 47 (1939) 445-450.

The author criticizes the conclusions of Dr. de Lemos, of the Institut des Avocats, who favors compulsory isolation of patients with leprosy. He holds that, from the economic point of view, such isolation is detrimental

with respect to other problems of the same importance. The leprosy person, like the tuberculous, the syphilitic and the cancerous, can and should be treated in active liberty; only those in miserable circumstances and the incurables should be interned. The solution of the problem in Brazil, he holds, lies in fixed places of consultation to which the patients may go, or (and?) mobile units for the search for cases. This would be contrary to what is being done in São Paulo, where segregation *en masse* has created veritable villages of leprosy patients, but where the juridical and political problem caused by [the policy of] obligatory isolation is immense.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 45.]

Primera Conferencia Nacional de Assistencia Social aos Lázarus. Ministério da Educação e Saude, Imprensa Nacional, Rio de Janeiro, 1941.

This 500-page illustrated volume, containing a foreword by Sra. Eunice Weaver, President of the Federation of Societies for Aid to Lepers and the Defense against Leprosy, under the auspices of which the conference was held in Rio de Janeiro, November 12-20, 1939 [see news item in *THE JOURNAL* 8 (1940) 371-372], is a full record of the proceedings. More than 40 papers were presented, classified in five groups: (1) private cooperation with efforts of the government; (2) assistance to families of needy leprosy patients; (3) the organization and functioning of preventoria; (4) the discharged patients and means of assisting them, and (5) propaganda against leprosy. The conclusions reached were summarized in the news item referred to above.

—H. W. W.

BOETTNER, V. [Leprosy in Paraguay.] *Rev. Méd. Paraguay* (1940) July-Sept.

There are about 180 inmates in the national leprosarium of Paraguay. Of 139,592 sick and wounded patients admitted to the hospitals of Asunción from 1932 to 1936 there were 56 with leprosy. A total of 187 cases were found among the men mobilized during the 3-year war. The author has seen 30 unrecorded cases in his private practice. Of 95 examined by him the youngest was a female 8 years of age, the oldest a German 73 years old, resident in Paraguay for 27 years. There is no focus of major concentration of leprosy in the Republic; its frequency parallels the density of population.—[From abstract in *Bol. Of. Sanit. Panamericana* 20 (1941) 849-850.]

PATRONATO DE LEPROSOS; Memoria del Correspondiente al Ejercicio Venecido al 30 de Abril de 1940; Año IX. [Report for 1939-1940] Buenos Aires.

The report of this extraordinary organization for 1939-40, more massive than ever (493 pp.), is of essentially the same form as was the preceding one [see *THE JOURNAL* 9 (1941) 124] with no less matter of purely local interest. One of its six sections gives data concerning aid given to or through various agencies, namely, the Muñiz Hospital and the dispensary and experimental laboratory at that institution; dispensaries in other localities, of which five are mentioned; social assistance to leprosy patients and their families; an "Academia Esperanza" for healthy children of leprosy parents, the first "preventorio" in Argentina, located in Buenos Aires, with 55 inmates; and the Colonia Infantil "Mi Esperanza," an institution under construction the ultimate plan of which provides for a population of 500

children. Another section pertains to a newly organized *Bibliotheca de Leprologia y Afines* of the Patronato "Dr. Enrique P. Fianza," and to a second new section of the organization, a *Consultorio Juridico*. Conferences discussed include the one on social assistance in leprosy convened by the Patronato, and a similar one held in Brazil. As usual, reports are given of the various branches or "filiales" in other cities throughout the republic, of which 23 are now listed, 5 of them organized during the year. Also as usual, a large part of the volume is devoted to the ultimate details of the sources of funds received, which totalled 289,655 pesos (60,520 less than in the preceding years), of which 226,833 pesos were expended. The "Fondo Social," on hand at the end of the year, in the central organization and the branches, amounted to 652,235 pesos. —H. W. W.

SCHUJMAN, S., FERNANDEZ, J. M. M., and VACCARO, H. Consideraciones a propósito de 400 convivientes de enfermos de lepra observados en nuestro dispensario del hospital Carrasco (Rosario). [Observations on 400 contacts of leprosy patients at the dispensary of the Carrasco Hospital, Rosario.] *Presente* 3 (1940) 11-12.

The contacts are examined at least every six months, with respect to the skin, lymph nodes, and peripheral nerves. The histamine test is used whenever necessary, histological and bacteriological examinations are made, and the lepromin test is applied systematically; when it is found negative, precautional examinations are made more frequently. The authors' records are of 1,500 examinations of 410 persons, among whom 40 cases of leprosy were found, the majority bacteriologically negative. Almost all of these had lived with bacillus-positive cases. In many, the first examination was negative. The brothers and children of patients are the ones more often infected. —G. BASOMBRIO

ROGERS, L., COOK, J. H., and MUIR, E. Leprosy cases in the British Isles. *Brit. Med. J.* (1940) July 6, 7-8; also *Lep. Rev.* 11 (1940) 170-173.

This committee of the British Empire Leprosy Relief Association deals with the data obtained by questionnaire regarding the number of cases of leprosy seen by the leading dermatologists in the British Isles during the last three or four decades. The number had frequently been guessed to be about 100; the data, probably not quite complete, show 87, of whom 23 were dead, 13 repatriated, and 11 not seen for over ten years (presumed to be dead or repatriated). This leaves 40 cases, including 8 last seen within ten years and presumed to be still alive and in this country. Of these 40 cases, 17 are neural (slightly infective) and one tuberculoid (mildly infective), the remaining 22 being lepromatous (more dangerous). Of the last group, 5 are isolated at the St. Giles Home and 2 are isolated with careful precautions, at their own homes; 2 have passed into a quiescent, little-infective condition under treatment; 4 were reported from the Tropical Diseases Hospital and 5 others are under treatment. In the remaining 4 the conditions of living were reported to be unsatisfactory when last seen, some years ago. It is concluded that the present situation is reassuring in view of the fact that nearly all of the infective cases are under expert care and many of them have reached an age when they are unlikely to come into close contact with susceptible children. It is advised, however, that the few infective patients who are not in a position to carry out effective home isolation, with prohibition of close contact with children, should if

possible be accommodated at the St. Giles Home.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 20-21.]

Y LAFFERRE and ROUANET. Lèpre autochtone bretonne. Maladie de Morvan ou syringomyélie? (A propos de deux observations.) [The autochthonous leprosy of Brittany; Morvan's disease or syringomyelia? (Two observations.)] *Bull. Mém. Soc. Méd. Hop. Paris* 55 (1939) 968-973.

The authors report, from Brest, two cases originating in Plougastel-Daoulas (Finistère), which had never left the country, and which presented a clinical syndrome which might be either leprosy or syringomyelia. Both had marked trophic changes of the lower extremities, with perforating plantar ulcers and osteolytic lesions of the bones. They also presented characteristic cutaneous lesions; one had insensitive achromic patches and the other had nodular lesions of the dorsal skin. In the latter case the histological examination showed lesions that were very suggestive of leprosy. In both cases the search for bacilli in the nasal mucus and in sections of biopsy specimens was negative. It was concluded that these cases are authentic ones of autochthonous leprosy.—[From abstract in *Presse Med.* (1939), July 1.]

[MALTA] Annual Report on the Health Conditions in the Maltese Islands and the Work of the Medical and Health Department for the Year 1939. By A. V. Bernard, Chief Government Medical Officer.

In the preceding year a scheme was introduced for improvement of the antileprosy effort in the Maltese Islands, involving improvements in the leprosy hospitals and in treatment. The present regulations have been amended to facilitate discharge of cases and to permit temporary leave for suitable ones. There is a leprosy control officer (Dr. R. Briffa) who is a member of the Leprosy Board, which controls the segregation and release of patients. Administration of the leprosy hospital in Malta itself has been separated from that of the Poor House (with Dr. R. Toledo as resident physician). The improvements made at the hospital included the establishment of a clinical laboratory and increased provisions for recreation, which include drives in the country, sea bathing, etc. The patients have organized a dramatic club and a choral group; the latter performs on festival days and are given the remuneration previously paid hired singers. All who are able to work (a majority) are encouraged to do so—carpentry, work in the gardens, field, wards, and other departments. Small money grants are made for such work, and eggs produced are purchased. These developments, together with the care and treatment given, have improved the morale of the inmates greatly, and three voluntary patients have been received. There were 72 inmates at the end of the year, during which 8, more than ever before, had improved sufficiently to be discharged. Two patients are allowed to live in their homes, receiving treatment from the control officer. The observations with regard to this hospital, it is said, apply to the one on the smaller island of Gozo, which was opened in 1937 with 15 cases transferred from the Malta hospital; the average population during the year was 18. Though "tubercular phthisis" is included among the notifiable diseases, leprosy is not.

—H. W. W.

AGOSTINI, M. La lebbra in Eritrea (condizioni presenti: rilievi nosografici, epidemiologici e profilattici). [Leprosy in Eritrea; present conditions of nosology, epidemiology, and prophylaxis.] *Gior. Med. mil* 85 (1937) 169-182.

According to the medical report of 1934, 548 cases had been found in the native population, 202 of them in the region of Adi Ugri. Of 12 that were investigated by the author in that year, in Sembel (Asmara), 10 were of the neural type.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 44 (1940) 380.]

[SUDAN] Report of the Sudan Medical Service for the year 1939.

A table shows a total of 6,720 known cases of leprosy, a great majority of which are in the central Kordofan Province and the southern Equatorial area, there being only very small numbers in the remaining northern dry areas. The large settlements in the Southern Province continue to do good work but have decreased considerably in size with the discharge of many recovered cases, who are kept under close watch. In the less affected areas small settlements for leprosy patients have been provided. There is no evidence of any increase of the disease, which is a less serious public-health problem than in most tropical African territories.—[From abstract in *Lep. Rev.* 12 (1941) 64-65.]

[BUNYONI, EAST AFRICA] Annual report of the C. M. S. Bunyoni Leper Colony, for 1940.

This (10th) report records progress with changes advised by Muir. The infectious and noninfectious inmates are separated by a fence across the island. The hospital has been improved and rearranged. Housing (brick houses) has been improved, with benefit to health. Chaulmoogra treatment has been continued. A new carpentry shop is useful as a step in introducing occupational therapy. Much more farm and other work is being done by the inmates than previously. All babies born are taken to the crèche, but it has been found necessary here, as elsewhere, to allow the mothers to come to suckle their infants during the first three months. Separate schools are maintained for the noninfectious and the infectious children; eight children have been sent out symptom-free, but five others have developed infection.—[From abstract in *Lep. Rev.* 12 (1941) 61.]

DAVEY, T. F. First report on leprosy control work in the Owerri Province, S. Nigeria. *Lep. Rev.* 11 (1940) 123-134.

This is a further report, for 1939, on the prophylactic measures in use in a large tract of country (the province is 150 miles long by 60 wide) surrounding the Uzuakoli leprosy colony, in southern Nigeria. In surveys made during the year 11,689 people were examined and 401 cases, 33 per-1000, were found. Surveys are followed up by the foundation of clinics and villages for segregation of the more infective cases, which are visited once a week by the headquarters staff. Land is given by the chiefs, and the necessary simple buildings are constructed by the patients themselves. At the end of the year 1,243 cases were being treated, and the numbers were increasing rapidly. A leper nurse is provided for each clinic. These clinics are built near motor roads and the patients attend regularly, and obvious improvement is seen in many of them. In one center every infectious case is now isolated in the leper village, the houses of which are



superior to those in the surrounding villages and thus provide lessons in sanitation. Leprosy inspectors are being trained and courses are given to both school teachers and sanitary inspectors, and medical officers are also being trained. Thus the influence of the colony is being extended at a very low cost, and must in time materially help in controlling leprosy in the whole province.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 21.]

MONEY, T. D. F. Report on the Oji River Leprosy Settlement and clinics for 1940.

Important progress in this large Nigerian settlement is reported. In order to extend its influence in the Onitsha Province, two new clinics have been added, with the cooperation of local councils, to the four earlier ones. The cases recorded now approach 10,000. Suitable patients in the central settlement are trained to help at the clinics, each of which is visited by the medical staff every week. These clinics now serve approximately two-fifths of the province, including the most densely inhabited portions. The settlement itself, where some 500 of the more highly infectious cases are cared for (an increase of 78 per cent), is a small town made up of several villages, with separate ones for men, women, and married couples. More farming land has been acquired, and an industrial school gives training in a variety of occupations. An improved system of agricultural employment has been introduced. Good results in physiotherapeutic training of disabled patients have been obtained at the hospital.—[From abstract in *Lep. Rev.* 12 (1941) 64.]

VAN HOOF, L. Rapport sur l'hygiène publique au Congo Belge pendant l'année 1939. [Report on public health in the Belgian Congo during the year 1939.]

During 1939, 74,397 cases of leprosy were treated throughout the colony, and 6 new European cases were diagnosed. About 10,000 new cases were discovered, especially in the provinces of Coquilhatville, Costermansville, and Elisabethville, in surveys made by the Fondation Père Damien. Preventive measures include classification of leprosy patients, isolation of infective cases and intensive treatment of those who are most likely to benefit from it. Segregation is at present only partially employed but will be improved in time and as the natives themselves recognize its value. Isolation villages of not more than 400 inhabitants are aimed at; these villages have dispensaries, hospitals, and land for agriculture, and are able to subsist on their own resources. They are administered according to local custom. Tables showing the number of patients in the leprosaria of the various provinces are given.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 457-458.]

ZSCHUCKE. Die Gesundheitslage in Guinea und ihr Wandel in den letzten drei Jahrzehnten. [Health conditions in Guinea and changes in the last three decades.] *Deutsche Trop.-med. Ztschr.* 45 (1941) 200-207.

The question of leprosy is of essential importance for the future of Guinea. For Nigeria alone the number of persons with leprosy is believed to be 400,000, i.e., at least 2.1 per cent of the population; and this rate probably applies, approximately, for the whole of Guinea. It is admitted in many official reports that the disease is much more prevalent than before, though at times this is veiled by the assumption of better knowledge

of the situation due to an increasing number of leprosia. The author believes that there has been no noteworthy advance in the therapeutic field since 1914, and as yet there is no talk anywhere of real isolation of the patients. The leprosy settlements accommodate only a fraction of the cases; for example, in Togo 10 per cent, in other places probably less.

—H. W. W.

MOISER, B. Ngomahuru Leprosy Hospital. Annual Report for Year 1940.

Regarding treatment, for which Moogrol continues to be the basis, it is pointed out that the results are very satisfactory when the drug is given in sufficiently large doses (up to 10 cc. 2 or even 3 times a week) but that when only small doses are employed the preparation seems to have little or no effect. At Ngomahuru large doses do not cause reactions. Though the same preparation is used at the other leprosia (Mtemwa and Mnene; the treatment of patients with leprosy at Mount Selinda has been discontinued) the results are not as good, but the author believes that increased dosage would effect improvement. Diphtheria toxoid has been tried in a limited number of cases, the majority of which had shown little evidence of improvement at the time of the report [see page 104 this issue.] One European patient infected in Burma had been admitted, accompanied by his wife, from England where the disease had rapidly become worse; under combined Moogrol-toxoid treatment he was making remarkable progress. Of healthy children of patients, of which there were 20, it is stated that though they are kept in the leprosarium and breast-fed by their mothers for a year, not one such child sent out in 11 years has been admitted with the disease; the practice, therefore, is considered fairly safe. One result of the "voluntary" system, it is said, is that discharged patients, in whom relapse occurs return at once for further treatment. The following statistics for 1940 are tabulated: patients, Jan. 1, 869; admitted, 204; re-admitted for (except four) further treatment, 46; discharged, arrested, 200; died, 34; deserted (22 returned), 81; on register Dec. 31, 827; total treated during the year, 1,107.—[From abstract in *Lep. Rev.* 12 (1941) 62-63.]

[SOUTH AFRICA, UNION OF] Public Health Report of the Union of South Africa for the year ending 30th June, 1940.

The usual tables show that in the five leprosy institutions the inmates numbered 2,347, of whom 89 were Europeans. New admissions, 778; relapsed cases, 83; discharges 600, deaths 203. The routine treatment continues to be by chaulmoogra oil and its esters, but the use of heavy metals is being investigated. For reactions foudadin and mercurochrome are used, and prontosil and M & B 693 proved of value in "pseudoerysipelas." Attempts to obtain cultures are said to give some promise at certain stages of the nodular stage.—[From abstract in *Lep. Rev.* 12 (1941) 62.]

AYCOCK, W. L. Familial susceptibility to leprosy. *Am. J. M. Sci.* 201 (1941) 450-461.

Aycock reviews the epidemiological history of leprosy, restating his own theory [see *THE JOURNAL* 6 (1938) 169 and 8 (1940) 137]. In ancient times the disease was regarded as highly contagious; later, because of its striking occurrence in familial lines, it was regarded as hereditary in nature (e.g., Danielssen and Boeck); with Hansen's discovery of the leprosy bacil-

lus the contagion theory again came to the front. This theory doubtless received its strongest support in countries where the proportion of susceptible individuals is high, whereas in regions where susceptibility is low, as in Norway, the hereditary theory was favored. Leprosy is undoubtedly spread through contagion, but the striking tendency to familial occurrence makes it appear that its development following exposure is, to a large extent, dependent upon a hereditary influence. Aycock holds that recognition of these dual causative factors, familial susceptibility and contagion, reconciles the discrepancies of the two theories. It best explains the high degree of communicability in blood relatives and the well nigh noncommunicability for unrelated individuals, such as nurses and attendants, husbands and wives, in equally close contact with cases. Leprosy persists among the Acadian French in New Brunswick, Canada, and in Louisiana. Among 311 cases recorded in New Brunswick, 293 belong to 39 family lines. Branches of the same Acadian families who went to New Brunswick are known to have gone to Louisiana. Of 60 Louisiana lepers in whom satisfactory genealogic statistics were procurable, 35 either bear the same surnames as cases in New Brunswick or have these names in their family lines. Leprosy in the United States is confined to certain racial groups in these areas. Besides the French Acadians, the Germans seem peculiarly susceptible.

—G. H. FAGET

LAMBORN, W. A. Cockroaches in relation to *Mycobacterium leprae*. Nyasaland Protectorate; Ann. Med. & San. Rep. for Year ending 31st December, 1939. Section VIII, pp. 28-31.

In continuation of his study of the possibility of leprosy being conveyed by insects, the author here deals with cockroaches, which are very common in tropical countries. In this work he used the familiar "black beetle" of Europe, *Periplaneta orientalis* and *Nauphoeta cinerea*, both very common in Nyasaland. These were fed on dressings of leprosy sores containing numerous bacilli, and their droppings were examined from day to day. Bacilli were found at intervals up to the 66th day, and at the earlier periods they were present in the form of typical globi. The cockroaches might, therefore, infect food by their droppings. In control insects he did not find such appearances, although atypical acid-fast organisms, apparently of a saprophytic nature, were occasionally met with. Attempts were made to infect white and wild rats with cockroach feces containing leprosy bacilli, but so far with negative results.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 22-23.]

SCHUJMAN, S. A proposito de una nueva clasificacion de lepra. [Concerning a new classification of leprosy.] *Rev. Brasileira Leprol.* 8 (1940) 111-118.

The new classification proposed by the *Revista Brasileira de Leprologia* has two advantages; namely, suppression of the topographic classification and a clear delimitation of the two elementary forms of the disease, lepromatous and tuberculoid. On the other hand it is criticized especially for presenting a fundamentally anatomico-pathological character and also for the inclusion of the simple inflammatory form, which the author finds lacking in precise features, clinically, bacteriologically, histologically, or immunologically. Holding that the immunological character should prevail in this matter, he proposes a classification into two types based on the

reaction to the Mitsuda antigen, namely allergic and anergic leprosy.—  
[From abstract in *An. Brasileiros Dermat. e. Sifilog.* 15 (1940) 242.]

PALACIOS, J. E. Diagnostico diferencial de la lepra cutanea. [Differential diagnosis of cutaneous leprosy.] *Rev. Colombiana Leprol.* 1 (1939-40) 275-276.

The principal conditions that may be confused with lesions of leprosy origin are: (a) Nonulcerated tuberculosis (lupus), the nodules of which, visible on vitropressure, fix the diagnosis. (b) Simple lupus erythematosus, which involves the nose and jaws in bat-wing fashion and in which are found three zones: erythematosus, velvety, and central cicatricial. (c) Eczema, with its characteristic vesicles and small scales, becoming lichenous in the chronic form. (d) Cuperosis, with its telangiectasis, acne pustules and involvement of the sebaceous glands. (e) Different syphilids, leaving in their intervals a normal skin. (f) Mycotic herpes, with its circle of vesicles outlining a red, squamous circular plaque. (g) Psoriasis, with stratified scales on the elbows and specially on the knees.

—M. BERNAL LONDOÑO

FREITAS JULIAO, O. and COUCEIRO, A. A-propósito do diagnóstico diferencial da lepra nervosa. [Regarding the differential diagnosis of neural leprosy.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 97-120.

This article presents detailed clinical observations of two cases referred by the leprosy service for diagnosis, the symptomatology of which had some similarities to "pure" neural leprosy: amyotrophies, Aran-Duchenne hands, severe disturbances of thermal and pain sensibility, etc. Neurological examination revealed a clinical syndrome essentially characterized by radicular and meningeal affections. Pathological study of the nervous system of the second case showed perfect accordance of the clinical symptoms (amyotrophies, arreflexia, hypotonia, troubles of sensibility and of the sphincters and sexual sphere) and the pathologic picture—chronic inflammatory reaction of the nerves examined, primary degeneration of the medullary roots, chronic hypertrophic cervico-dorso-lumbar leptomeningitis, accompanied in the cervical tract by pachymeningitis. The nature of the condition was not determined, but leprosy was eliminated in both instances.—[From authors' summary.]

MAEDA, T. Pilocarpine test in leprosy. *Trans. 13th Meet., Japanese Lep. Assoc.*, 1939; *La Lepro* 11 (1940) suppl. 71-72 (abstract).

The author has applied Jurgensen and Milner's pilocarpine test for sweating, which was modified by Dubois and Degotte in the Belgian Congo (technique as given by Muir), in 26 cases—23 macular, 1 neural, and 2 lepromatous. It is concluded that: (a) the reaction is significant in differentiating anesthetic areas from the intact skin; (b) it parallels recovery of skin sensation; (c) its intensity parallels that of pain after intradermal injection of pilocarpine; (d) the border of the tuberculoid macule reacts less strongly than healthy skin and produces semicircular coloring on the healthy part; (e) the reaction agrees with the histamine reaction of Lewis and Rodríguez; and (f) for use in dark-skinned races it is better than the histamine test because of the intensity of coloring.—[From abstract.]

FERNANDEZ VAUTRAI, R. Comentarios sobre a chamada "Lepra Lazarina" ou "Manchada" forma criada pelos autores mexicanos. [Comments on so-called lazarine leprosy, or the "Manchada" form of Mexican authors.] *Ann. paulist. de med. e cir.* 42 (1941) 80 (abstract).

The author reviews the history of so-called "lazarine leprosy" or "manchada," a form distinguished by the Mexican authors Lucio and Alvarado, and considers the clinical picture as described by them, which was characterized by lepra reaction, and the descriptions given by Pardo Castello and Caballero and by Rodriguez. He concludes that lazarine leprosy is characterized by evolution in the form of acute exacerbations with manifestations principally affecting the skin, with clinical signs similar to those which distinguish the "reactional" forms of the disease, lepromatous or tuberculoid. It is not, therefore, justified to use this term to characterize a form, type, or subtype of leprosy.—[From abstract.]

REVERAND, P. Contribution à l'étude des algies au début de la lèpre. [Contribution to the study of pain at the onset of leprosy.] Thèse de Paris, 1939.

Mentioning the classical criteria for the diagnosis of leprosy, the author points out that though the bacillus is dermatropic it is also neurotropic, and may at the very beginning give rise to purely subjective phenomena of neuritis. These are characterized especially by pain, the origin of which is rarely recognized; such cases are usually treated for rheumatism. It is only long afterward, when the infection has progressed, that the correct diagnosis is made. From his observations in the Saint Louis hospital, in Paris, the author describes four cases in which pain was exclusively the first manifestation. This prodromal stage was marked by extremely intense neuralgia, resembling the pains of tabes, with the sensation of torsion and often accompanied by muscular subsaltus. They occurred especially in the extremities, appearing in successive crises and increasing rapidly in severity in the absence of any treatment. In dealing with such neuralgias, especially in endemic regions, the possibility of leprosy should be considered and other indications of that disease sought. In two of the cases areas of anesthesia existed from the time pain was first experienced. [From abstract in *Rev. de Palud.* (1940), Jan. 15.]

CHEW, B. Trigeminal pain due to leprosy. *Brit. M. J.* 1 (1940) 172.

In this case, occurring in Singapore, the primary and only manifestation of leprosy was involvement of the right supraorbital nerve. Trouble had started 1½ years previously with occasional 20-minute periods of twitching in the right frontal region, with temporary numbness and sharp burning pain. The condition slowly increased in frequency, severity, and extent of the area involved; finally several attacks occurred each day, and the pain radiated over the right half of the scalp, so severe as to be temporarily disabling; the forehead was now constantly numb. The nerve was much thickened from the foramen upward, and there was a small, slightly elevated and reddened patch under which the nerve could be palpated. Histological examination of the nerve established the diagnosis of leprosy, of which there was no sign elsewhere. —H. W. W.

DE SOUZA LIMA, L. and ALAYON, F. L. Mutacões de incarcaterística en lepromatosa. [Change from noncharacteristic to lepromatous leprosy.] *Ann. paulist de med. e cir.* 42 (1941) 164 (abst.)

In 40 cases of noncharacteristic (i.e., simple macular) form which became lepromatous, the change followed two different courses: (1) progressive transformation, in preexisting lesions, and (2) abrupt transformation, with new lesions. In the progressive change the signs of lepromatization were: (a) the development of a yellowish color, (b) diffused erythematous zones, sometimes with accentuated discoloration, and (c) annular lesions with clear internal circles and external diffusion. In the abrupt transformation there suddenly appeared clear erythematous lesions, slightly infiltrated, resembling urticaria. The infiltrations rapidly disappearing, the signs of lepromatization appeared in the remainder of the lesions. In certain instances erythema nodosum elements appeared in patients with achromic lesions. The Mitsuda reaction was negative in all cases.—[From abstract.]

LOWE, J. and CHATTERJI, S. N. Onset of leprosy with localized lesions rapidly becoming lepromatous. *Lep. in India* 12 (1940) 112-114.

Three cases are recorded which at the outset were of the neural type, with erythematous patches, anesthesia, and thickening of nerves, but in which lepromatous lesions containing numerous lepra bacilli developed within a short time. In the authors' experience a considerable number of cases either start as of the lepromatous form, or develop into that form very quickly.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 222.]

MAURANO, F. O azul de metileno como revelador de lesões "inaparentes" na chamada lepra difusa. [Demonstration of inapparent lesions in so-called diffuse leprosy by methylene blue.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 159-163.

In continuation of a previous study of "diffuse cutaneous leprosy," especially the aspects of the bacteriology and histology of the skin, the author discusses the relatively "inapparent" lesions in the lepromatous form of the disease. The extent of these lesions has been studied by making them evident by means of intravenous injections of methylene blue. The dye causes coloration in diffuse zones or in more or less clearly limited areas. These may or may not have been found, before or after, to be bacteriologically positive, or to have been the sites of previous lesions. In one case, one of the colored areas showed a lepromatous structure and was notably rich in bacilli. Not all places which previously had been found positive became colored, however, nor did all positive cases become stained. One with lepromatous infiltration never showed coloration. Staining was also observed at the sites of previous erythematous macules, which either had continued positive for bacilli or had become negative; in previously poorly defined macules which had disappeared; in areas that, without presenting any typical lesions, had been the seat of erythema nodosum which had disappeared without trace; and finally in scars of nodules. However, methylene blue does not always color all lesions such as erythematous macules or nodules of reaction (erythema nodosum).—[From author's summary.]

- MAURANO, F. A pesquisa das perturbações da sensibilidade nas lesões "inaparentes" da chamada lepra difusa. [Investigations of the disturbances of sensibility in so-called "inapparent" lesions of diffuse leprosy.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 165-166.

Disturbances of sensibility in inapparent lesions of lepromatous leprosy, some revealed by methylene blue and others by histology, have been observed. Such disturbances sometimes serve to induce the patient to seek diagnosis in the absence of characteristic leprosy lesions. They may be found in apparently unaffected areas which are colored by methylene blue and are bacteriologically positive, but in other cases under the same conditions they are not found.—[From author's summary.]

- MAURANO, F. Relações entre as lesões "inaparentes" da chamada lepra difusa e o eritema nodoso. [Relations between the inapparent lesions of so-called diffuse leprosy and erythema nodosum.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 167-170.

Observations have been made to ascertain whether or not there is an integral interdependency between the inapparent lesions of lepromatous leprosy and erythema nodosum (lepra reaction nodules). In various cases such nodules appeared in areas colored by methylene blue, where previously there had been neither any characteristic leprosy lesions nor temporary reaction lesions. In these areas there were distinct alterations attributed to the diffuse, inapparent form of leprosy. In certain cases the erythema nodosum preferred the blue area, and the process was more persistent than elsewhere. The reaction was not always in areas colored by blue; other areas with alterations possibly attributable to the inapparent condition were also affected.—[From author's summary.]

- MAURANO, F. A histamina como reveladora de lesões "inaparentes." [Histamine in the demonstration of inapparent lesions.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 171-172.

Applying the histamine test to the so-called inapparent lesions, it was found that some of them, principally those on the face, behave like normal skin. A notable parallelism was observed in two cases in which there were extensive anesthetic zones, positive histologically, where there never had been any typical lesions but which at the time of examination presented macular elements. The reaction to histamine in these cases was negative. The tests were made in the crural region, in apparently normal skin bordering or delimiting skin with the alterations of inapparent lesions.—[From author's summary.]

- DE SOUZA LIMA, L. and MAURANO, F. Peculiaridades clinicas do eritema nodoso na lepra. [Clinical peculiarities of erythema nodosum in leprosy.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 173-177.

According to many authors, erythema nodosum is the most frequent cutaneous symptom of lepra reaction, all other manifestations paralleling it, in a manner which represents the exteriorization of a single process. The condition, however, has peculiarities which, in synthesis, are: (a) its greater extension than the classical erythema nodosum, and the fact that it affects parts never or seldom affected by the latter, such as the face; (b) its association with acute reactional phenomena of the nerves, lymph nodes, eyes, and testicles; (c) its duration, which in the majority of cases

is very long; (d) the not infrequent suppuration of the lesions, principally under the action of certain medicaments; and (e) its sequelae, such as the pigmentation, which is more rare, and more permanent probably because of the duration of the process. Cutaneous atrophy is also much more common.—[From author's summary.]

DE SOUZA LIMA, L. and MAURANO, F. Plano de estudo da reação leprótica. [Plan of study of lepra reaction.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 179-182.

Because of the extreme frequency of lepra reactions, and particularly of the manifestations appearing in the form of erythema nodosum—accompanied or not by other symptoms—the authors have been surprised by the declaration of Pautrier regarding the poverty of documentation of the erythema nodosum; it seems that this syndrome in leprosy has not yet been sufficiently emphasized. They are in full accord with Pautrier that the occurrence of true erythema nodosum in leprosy is far from being proved and outline a plan by which it is hoped that further light may be thrown on the matter, which will be the subject of a forthcoming monograph. Both the clinical and etiopathogenic aspects of the matter will be given due attention.—[From authors' summary.]

BÜNGELER, W. Die allergischen Reaktionen bei tuberkuloïder Lepra. [The allergic reactions in tuberculoid leprosy.] *Klin. Wehnschr.* 19 (1940) 299-302.

On the basis of clinical course and pathological changes leprosy is divided into two fundamental forms, the lepromatous and the so-called tuberculoid ["tuberculide"] forms. Characteristic of the other form is the restriction to the skin (extending to the peripheral nerves, but without visceral involvement) and the tendency to self-healing. Transformation of the one to the other does not occur. The histological, bacteriological, and clinical features of tuberculoid leprosy are discussed. This form of the disease is not at all a true leprosy; leproma are never found in it, and it also differs in its clinical features. It is much more a condition of continuous hypersensitivity (higher immunity) against the leprosy infection. This leads mainly to local hypersensitivity reactions but not to real progressive leprosy.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 44 (1940) 385.]

CHALA H., J. I. Sobre un caso de lepra tuberculoïde. [A case of tuberculoid leprosy.] *Rev. Fac. Med. (Bogotá)* 9 (1940) 121-127

After discussing the matter of tuberculoid leprosy and commenting on interpretations of writers in different countries, the author presents a case in a farmer, married, 34 years of age, who on the first examination showed infiltrated patches with pinkish peripheries on the left eyebrow, upper lip, and nose. One month later the condition became generalized, there then being erythematous macules with raised borders and smaller, papular lesions of lichenoid aspect. The case was classified as neuromacular leprosy, of the minor tuberculoid (Nt) variety.—[From abstract in *Rev. Brasileira Leprol.* 8 (1940) 470.]

BLACKBURN, J. H. Leprosy with rapid progress. *Med. J. Australia* 2 (1940) 440.

A very brief note on the case of an aboriginal woman who had had



contact with a family three members of which were leprosy, reported from the Woorabinda Aboriginal Settlement, in Queensland, because of its unusually rapid progress. When first examined she had only an indurated anesthetic patch on one arm; nine months later there were multiple and widely distributed lesions. Smears were positive. [Apparently a tubercloid case with a solitary lesion that underwent reactional activation.]

—H. W. W.

MITSUDA, K. Verlauf der Nervenverdickung bei Nervenleprakranken. [Course of nerve thickening in cases of neural leprosy.] Japan Ztschr. f. Dermat. u. Urol. 48 (1940) 47 (abstract).

In the early stage of the disease, macules and thickening of the nerve usually resorb completely in a matter of months, but after a considerable period relapse occurs. An interesting case is reported of identical twins who developed macules and nerve thickening at the same time.—[From abstract.]

CARLOS ARANTES, S. A perfuração de sépto nasal na lepra. [Perforation of the nasal septum in leprosy.] Rev. Brasileira Leprol. 8 (1940) 247-268.

The frequency of this condition among the 1,822 cases examined was very high, 35 per cent. It may be found in the early stages of the disease as well as in its most advanced phases. It does not always cause deformity. Its site of election is the middle third of the septum. In certain cases with obscure or minimal symptomatology the presence of this lesion may constitute an important and decisive element in the diagnosis.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 308.]

PENDERGAST, J. J. Ocular tuberculosis; its similarity to leprosy. Minnesota Med. 23 (1940) 98-101.

Studying at Carville, the author was struck with the similarity of the gross and microscopic leprotic eye lesions to those of tuberculosis. In both diseases the condition is chronic and secondary, and it may affect almost any portion of eye or adnexa. Involvement of the conjunctiva is rare; tuberculosis of the tarsal conjunctiva is in form of follicles or ulcers. The cornea is quite vulnerable to both, deep infiltrations invading this tissue followed by an abundant meshwork of vessels; tubercle bacilli are difficult to demonstrate but leprosy bacilli are plentiful. Pannus formation is very common in leprosy. Posterior precipitates are common in both infections, the end result a sclerosing keratitis. Scleral involvement is rare, this tissue offering stiff resistance to both organisms, its avascularity being a factor. The uveal tract, having an abundant blood supply, is commonly involved. The clinical picture in the iris is quite similar in both diseases; there is usually no pain, some pericorneal injection, some "K.P." spots and posterior synechia; tubercles or leprosy nodules may or may not be observed in the stroma. Leprosy of the iris has a very insidious course and resembles the miliary form of tuberculosis in its later stages when many white pinpoint nodules collect on the surface; there are many synechiae, and much proliferation of iris pigment and atrophy. The changes of the ciliary body in both diseases consist principally of infiltrations, especially around the circulus major, and eventually they lead to caseation, perforation, and atrophy. When tuberculosis of the choroid occurs the lesion

often resembles a neoplasm. Leprous choroiditis likewise seems to be uncommon, despite the fact that bacilli are often seen extending back through the ciliary body into the choroid. Retinal tuberculosis consists for the most part of an endophlebitis or periphlebitis, eventually leading to thrombosis with intraocular hemorrhage. In leprosy retinal lesions are rare. The optic nerve is practically immune to both infections. —G. H. FAGET

MAURANO, F. and FERNANDEZ VAUTRAI, R. Considerações em torno da anetodermia em uma doente da lepra. [Considerations regarding anetodermia in a case of leprosy.] *Rev. Brasileira Leprol.* 9 (1941) 185-191.

The authors present a case characterized by circumscribing atrophies of the skin simulating small pouches. Through clinically a case of anetodermia, it cannot be assigned either to the Jadassohn-Thiebierge-Pelizari or the Schweninger and Bazzi type, for it was found in the third stage. They discuss leprosy as either the cause or as a contributory factor. It is held admissible that various causes can produce this picture, admitting the conception of a congenital disease, or an acquired one, of the elastic or connective tissue.—[From authors' summary.]

NAMBA, M. Ein Fall von irisförmigem leprösen Exanthem. [A case of iris-form leprosy eruption.] *Japan Ztschr. f. Dermat. u. Urol.* 48 (1940) 46 (abstract).

A man, 53 years of age, had over the entire body an eruption of egg-sized, copper-red lesions, slightly raised above the normal level of the skin but with depressed centers. On the lower extremities was found another form of lesion, the center of which formed a white ring around which there was a second brownish, markedly pigmented ring. This eruption, according to Mitsuda, represents the transition between nodular and neural leprosy.—[From abstract.]

RODRIGUES DE SOUZA, A. Escrofulato de lepra; estudo clinico. [Scrofula in leprosy; clinical study.] *Rev. Brasileira Leprol.* 9 (1941) 131-162.

The author has studied 18 cases of lepromatous, tuberculoid, and non-characteristic leprosy with lymph-node and cutaneous manifestations of "scrofula in leprosy," all confirmed by inoculation of guinea-pigs and pathological examinations. Concomitant pulmonary lesions were present in 8; in the others the tuberculous adenitis was primary. It is recommended that cases with open adenitis should be isolated from others. Special mention is made of three cases of tuberculoid leprosy with pulmonary tuberculosis, which were studied completely. Regarding the question of which of these two infections is primary and how they influence each other, it is stated that tuberculosis repels leprosy, whereas the latter attracts tuberculosis by direct bacillary implantation.—[From author's summary.]

KAMIKAWA, Y. Present therapeutic methods for leprosy. Special address. *Trans. 13th Meet., Japanese Lep. Assoc., 1939. La Lepro* 11 (1940) suppl. 47-54.

This lengthy summary first emphasizes the confusion that exists regarding the value of specific remedies, exemplifying the situation by the fact that a certain remedy may be regarded as almost worthless in an institution where most cases are advanced, but be praised as effective where earlier cases are dealt with. The author presents in tabular form

a complicated "curative-reaction index" for grouping cases according to response to treatment. Chaulmoogra oil, used in Japan for 300 years, is the most beneficial of the host of drugs that have been tried, but a considerable list of others are regarded as beneficial adjuvants. The author has tried acridin derivatives and sulfanamid preparations, but has found them of no value. Various methods of physico- and immuno-therapy are listed, but none is regarded as satisfactory. In connection with the attention recently given to the matter of diet, it is stated as generally known that excessive fat aggravates the disease and causes fever in nodular cases, and that in obese patients the disease is prone to change to that form. His own observations (tabulated) confirm the first of these statements, but indicate that increased fat diet is apt to be beneficial in neural leprosy; decrease has the reverse effect in both instances. Chaulmoogra treatment, "the only remedy for leprosy today," is dealt with at some length. As for the mechanism of its action, the author disagrees with the increased lipase theory; he has found that the injected oil "produces a certain antigen" which acts "somewhat as a specific remedy." With regard to the curability of the disease, sometimes mild and early cases can be brought to a condition of cure, but in general it must be admitted that leprosy is incurable. A tabulation shows that out of 1,200 inmates in the past nine years, only 56 have been discharged as clinically healed (13 neural and 43 nodular), and of them 11 (20%) have been readmitted.

—H. W. W.

MARKIANOS, J. Die Behandlung der Lepra. [Treatment of leprosy.] *Ann. Hellén. Dermat. et Vénéreol.* 2 (1940) 1.

The author discusses the various methods employed in recent years in the leprosarium at Athens. Gold treatment was not only without value, but in one case it caused blindness. Some virtue has been found in methylene blue; improvement has been obtained with it, but not cure. The complex Flandin-Ragu-Baranger preparation (chaulmoogra oil with cholesterol) is not only without value but is dangerous; one patient died under treatment with it. Electrocoagulation is of value in the destruction of the leprosy tumors. Chaulmoogra remains the basis of treatment.—[From abstract in *Dermat. Wehnschr.* 112 (1941) 326.]

MUIR, E. Some basic principles in leprosy treatment. *Lep. Rev.* 11 (1940) 162-169.

After emphasizing the high resistance of the tissues with intense cellular reaction in nerve cases, compared with the absence of resistance in the lepromatous type, the author states that in the latter type the two objectives are to strengthen and stimulate the tissue cells to act more vigorously in breaking down the defense of the bacilli. These principles are the basis of his oft recommended measures to improve the general health by regular exercise, etc. Local applications of caustics, such as trichloroacetic acid, intradermal injections of hydnocarpus oil, the exact action of which is not fully understood, and nutritious diet are also advised. Potassium iodide, in small doses at first, is stated to have a specific effect in breaking down the defense mechanism of the bacilli. Fluorescein in 10 grain doses daily for seven months, methylene blue, 4 grains for six months, or trypan blue, 4 grains for over one month, are also recommended, but he does not advise massive doses of these dyes.—[Abstract from *Trop. Dis. Bull.* 38 (1941) 223.]

- ALBARRACIN, L. Tratamiento por medio de la infiltración intradérmica. Metodo de la "plancha." [Treatment by means of intradermal infiltration; the plancha method.] *Rev. Colombiana Leprol.* **2** (1940-41) 112-124.

Before going into the technique used, the author discusses prognosis, the necessity of selecting the cases that can be treated to advantage, application of the eclectic method and products now used with best effects. Relating the origin of the method of intradermal infiltration, he considers its advantages and inconveniences, and the manner in which the effects are produced.

—M. BERNAL LONDOÑO

- LIPPELT, A. Sobre as infiltrações intra-dérmicas na lepra. [Intradermal infiltrations in leprosy.] *Ann. paulist. med. e cir.* **40** (1940) 135 (abst.).

The author pointed out that while there are numerous advantages in treatment by intradermal infiltration ("plancha" method) with chaulmoogra ethyl esters (creosote or iodine added), there are not a few cases in which this procedure presents grave inconveniences. Sometimes it causes general reactions and local ulcerations, and frequently painful local reactions; and in a large majority of cases it leaves pigmented scars. For cases giving particular trouble he mixes "olobintin" in proportion of 1.1 cc. to 3.0 cc. of chaulmoogra esters, though it is not a specific drug for leprosy.

[In discussion, Paulo Vieira suggested that the pigmentation might derive from the ethyl esters itself, while Madeira attributed it to the added drugs (iodine, creosote). Bianco and Arton pointed out the possibility of the formation of eleidomas or paraffinomas by injection of esters combined with "olobintin." Cerruti asserted that in his experience of more than six years the prolonged intradermal use of chaulmoogra ethyl esters, either iodized or creosoted, never caused such lesions. The author remarked that, if produced, they would be due to the oily "olobintin."—[From abstract.]

- NAGAO, S. Action du bleu de méthylène sur le *Mycobacterium leprae*. [Action of methylene blue on *Mycobacterium leprae*.] *Trans. 13th Meet., Japanese Lep. Assoc., 1939; La Lepro* **11** (1940) suppl. 65 (abstract).

Methylene blue is fixed electively in the infiltrative lepromatous lesions, there seeming to be a constant relation between the abundance of bacilli and the coloration. Throughout the course of the treatment, the bacilli for the most part lose their acid-fastness, and many are segmented or even coccus-like. Clinically, however, there is no beneficial effect.—[From abstract.]

- SATANI, Y. and TANIMURA, T. Zur Frage der Bedeutung der Vitamine bei Lepra und in der Dermatologie. [The value of vitamins in leprosy and in dermatology.] Special address, *Trans. 13th Meet., Japanese Lep. Assoc., 1939. La Lepro* **11** (1940) suppl. 55-60.

The two phases of the subject indicated are dealt with in detail after a general consideration of the vitamins as a whole. Stating that few reports are available with regard to these substances in leprosy, he refers briefly to a number of articles on the first four of these substances (A, B, C, and D), all by Japanese workers. The rest of the article is devoted to

vitamins in dermatology, this section being more extensive but the survey hardly more comprehensive. —H. W. W.

MARINO BECHELLI, L. A vitamin C no tratamento da reação leprótica. [Vitamin C in the treatment of lepra reaction.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 251-255.

Twenty cases of lepra reaction were treated by daily intramuscular injections of 50 mg. (sometimes 100 mg.) of ascorbic acid. The effects, compared with those of other medicines employed, were satisfactory though far from the results desired. In only 2 cases was there complete involution of the reaction, but more than one-half of them showed improvement. Some were only slightly benefited, and 4 of them showed no effects. It would seem that when acute reaction is not influenced by a series of 6 to 10 injections of 50 to 100 mg. each, there is no advantage in continuing this treatment. The trial should be extended, however, to confirm this conclusion and also to determine the best dosage, daily and total.—[From author's summary.]

DA SILVA GUIMARAES, J. O estroncio na reação leprotica. [Strontium in lepra reaction.] *Rev. Brasileira Leprol.* 8 (1940) 119-141.

In treating lepra reaction the author has used methylglyoxylate of strontium diethylendiamine, in intravenous injections of 5 cc. containing 0.45 Gm. of the substance. Only 2 of 21 cases were not benefited, good results were obtained in 16, with total regression of the reaction phenomena in 10. Not only were the temperature and the cutaneous elements influenced, but also the neuralgic pains and the general condition. No signs of intolerance were observed save a slight impression of warmth of the face immediately after the injections.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 242.]

MARINO BECHELLI, L. and CUNHA, D. N. A vitamina B no tratamento das nevrites leprosas. [Vitamin B in the treatment of leprotic neuritis.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 257-264.

In experimenting with vitamin B<sub>1</sub> in treating painful leprotic neuritis, the authors have employed injections of 2 mg. of B<sub>1</sub> (1,000 I.U.) with very satisfactory results. Of 17 cases, only 2 did not improve; in 11 cases (5 with acute neuritis) the pain disappeared, and the other 4 were benefited. In future trials higher doses will be used, and the treatment will be given for longer periods.—[From authors' summary].

VESPOLI, M. Contribuição ao tratamento das nevrites na lepra. Nevrite leprótica. [Contribution to the treatment of leprotic neuritis.] *Rev. Brasileira Leprol.* 8 (1940) Spec. No. pp. 75-83.

Infiltration of the nerves with 2 per cent formic acid seems to be the most harmless and effective method of treating painful leprotic neuritis. The effects are rapid and there are no counter-indications. The technique is simple, and it can be done by attendants. To the time of writing no recurrence had been observed in patients treated by this method.—[From authors summary.]

MARIANO, J. Contribuição á terapeutica das nevrites na lepra. [Contribution to the therapy of neuritis in leprosy.] *Rev. Brasileira Leprol.* 8 (1940) 313-316.

The author has experimented with a preparation of dichlorohydrate and monochlorohydrate of histamine (Pathergex) in the treatment of the neuralgias of leprosy, finding it to be efficacious in the cases observed, with no ill effects attributable to it. The rapidity and duration of the effects vary in different cases.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 308.]

MAEDA, T. Surpassing effect of salvarsan injection to leprosy neuralgia. (add. intravenous alcohol injection) Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 65-66 (abstract).

As previously reported, the author finds salvarsan to have a curative effect in leprosy neuralgia and has treated many cases with success. In addition, intravenous injections of alcohol have been tried with some effect, using 20 per cent concentration instead of 33 per cent (original solution). Some cases of neuralgia with slight thickening of nerves were relieved by the alcohol injections without any by-effect; they have had no effect on lepra reaction in lepromatous cases. Salvarsan is much more beneficial in neuralgia with thickened nerves, having been often effective in cases in which alcohol gave no benefit. The serum of patients who had been treated by salvarsan injection, when injected around thickened painful nerves of other patients, showed effects.—[From abstract.]

REENSTIERN, J. Further therapeutic tests with an anti-leprosy serum (in Netherlands East Indies and other countries). *Acta. Med. Scandinavica* 118 (1941) suppl. 1-195.

This work, dedicated to the memory of Juan de Dios Carrasquilla, the Colombian pioneer in the serum therapy in leprosy, deals with all previously unpublished trials with the author's antileprosy serum of which reports have been received. These tests have been carried out in 17 countries by about 30 physicians, on more than 200 cases. The majority of these cases had previously been treated with chaulmoogra preparations, but with little or no improvement then or during subsequent periods without any treatment. Many of the manifestations (cutaneous and nasal ulcers, loss of sensibility, paralysis, impaired eye-sight, etc.), began to improve as early as a few days after the commencement of serum injections, a result which cannot be dismissed merely as spontaneous amelioration. Though most of the patients received only one series of injections (3 doses of 10 cc., intragluteally), the improvement has not always been of temporary nature, as is evident from examinations of 41 cases made from 7 months to 2½ years afterward. The author holds that this rapidly-acting preparation should be employed in combination with the more slowly-acting chaulmoogra drugs, as syphilis is treated with rapidly acting (e.g., arsenical) and "depot" (e.g., mercurial) remedies. The suggested schedule is: stop chaulmoogra for perhaps a month; administer one series of serum injections (one week); observe for a month (or less); resume chaulmoogra. The interruptions in the standard treatment would hardly harm the patients, and might benefit them through the improvement of chaulmoogra-resistant lesions. Coincident local treatment is also advised, as the application of solid carbon dioxide to lepromata (Paldrock), shark-liver oil to perforating ulcers (Ryrie), etc.

—J. SCHAUMANN

- BALIÑA, P. L. and BASOMBRIO, G. A. Ensayo de tratamiento de la lepra con un suero preparado por el Dr. Reenstierna. [Experiment on leprosy treatment with the serum of Dr. Reenstierna.] *Rev. Argentina Dermatosisif.* **23** (1939) 335-338.

The authors made a trial of Reenstierna's serum in 10 cases in the out-patient clinic, following his instructions except that instead of using neural cases as he advised they selected for this experiment several well-developed, but not extremely advanced, bacteriologically positive lepromatous cases with negative Mitsuda reactions, some of them nodular. Their ages varied from 15 to 61 years. The supply of the serum available did not permit them to give the number of injections recommended, but otherwise the instructions were strictly followed. The results are given in a table. Though the patients were all able-bodied and well fed, there was no definite evidence of improvement.

—H. W. W.

- OBERDOERFFER, M. Vorläufige Mitteilung zur Leprabehandlung mit Formoltoxoiden, Diphtherieantitoxin und Nebennierenbestrahlung mit Kurzwellen. [Preliminary report on the treatment of leprosy with formol-toxoid, diphtheria antitoxin, and short-wave radiation of the adrenal.] *Arch. f. Schiffs- u. Tropen-Hyg.* **44** (1940) 180-181.

This is a brief statement regarding investigations started by the author in Chiangmai, Thailand, before the summer of 1939, and carried on by his coworker, Collier, who had communicated to him the results observed. The line of approach was based on the author's conviction of the importance of the adrenal and injury of it in leprosy, which led to the question whether it might be possible to treat the disease through specific or non-specific stimulation of that organ. The results, given in briefest form, appear in previously published abstracts of other reports [see *THE JOURNAL* **8** (1940) 538, 539, and 549], and later developments have been dealt with otherwise.

—H. W. W.

- ARANTES, S. C. Resultados nulos do tratamento da lepra pelo "Alfon"; observação de dois anos. [Negative results of treatment of leprosy by "Alfon"; two years' observation.] *Rev. Brasileira Leprol.* **9** (1941) 179-184.

A year previously the author had reported to the authorities, on inquiry, the results of his observations of treatment with the proprietary medicament referred to, as follows: (a) that in nodular and mixed cases it caused aggravation of the lesions, inducing new exanthema, nodules, etc.; (b) that cases of lepra reaction were multiplied, many of them becoming intractable; and (c) that neural cases showed no change. The experiment has been continued for another year, no other treatment being given the patients and periodical examinations being made every three months. Among the 120 patients, 67 received up to 500 cc.; 52, from 500-1,000 cc.; and 1, more than 1,000 cc. During the first year, 61 of them abandoned the treatment, as did 51 more during the second year; only 8 continued. Of these cases, 80 became worse, 33 (almost all of neural type) remained unchanged, and 7 died, four of them of cachexia leprotica. In general, there was progression of the lepromatous condition, either with the appearance of new nodules or the persistence or aggravation of lepra reaction. The bacteriological findings agreed with the clinical results; those cases that were positive remained so, and some that were negative became

positive. The eight which continued under treatment were in no better state. This preparation, the author concludes, does not impede the dissemination of the bacillus, but even favors it. He is convinced that the drug is not only ineffective in the treatment of leprosy, but actually prejudicial.—[From original.]

OLIN, T. E. Rubrophen bei Lepra tuberosa. [Rubrophen in nodular leprosy.] *Acta Dermato-Venereol.* **22** (1941) 169-175.

Two cases of nodular leprosy submitted to treatment by rubrophen showed clinical improvement at first, but that was of short duration. In one case, the photograph of which shows a partial disappearance of the rather marked nodules, the histological picture after the treatment, compared with that before treatment, shows widening of the cell-free border layer and dividing strands of connective tissue within the leproma; but it is pointed out that the biopsies were of two different nodules. In both cases the numbers of bacilli remained unchanged.—[From author's summary.]

MAJIMA, S. Omnadin in treatment of leprosy. *Trans. 13th Meet., Japanese Lep. Assoc., 1939*; *La Lepro* **11** (1940) suppl. 66-67 (abstract).

Omnadin, a lipo-protein therapeutic preparation employed as a non-specific antigen, said to activate the bacteriophage phenomenon and to increase rapidly the white blood cells and immune bodies, was used in treating leprosy cases in 2 cc. doses given subcutaneously or intramuscularly over a period of four months. One group of 6 cases of various types and degrees received 36 injections each during this period; 3 showed no changes, but in the others there was improvement of marked infiltrations and ulcerations. Another group comprised 7 cases with acute lepra reaction; 5 showed improvement (10 to 18 injections) but the other two did not. This preparation was given, together with surgical treatment, in other cases with complications such as erysipelas, phlegmon, myositis, and osteitis; it apparently shortened the time of healing in all instances. While omnadin appears to have no specific curative power on leprosy itself, it increases the resistance to the bacillus and helps to improve the general physical condition.—[From abstract.]

RIN, E. Auto-leproma-vaccine in treatment of leprosy. *Trans. 13th Meet., Japanese Lep. Assoc., 1939*; *La Lepro* **11** (1940) suppl. 67 (abstract).

Vaccines prepared by the method of Williams were made of lepromas from 23 cases and used in the treatment of the individuals from which they derived. Injections were made weekly, first 0.1 cc., then 0.5 cc., and thereafter 1.0 cc.; the total amounts given varied from as little as 0.6 cc. (2 injections) to 10.6 cc. (12 injections). Omnadin was also injected intramuscularly in the intervals, as an adjuvant. Results: better, 30 per cent; slightly better, 9 per cent; no effect, 43 per cent; worse, 17 per cent. By-effects: general itching, 10 cases; nerve symptoms including headache, 6; attacks of fever, 5; local inflammation, 4; eruptions, 4; fatigue, 3; none, 5. The most serious by-effects were erythema nodosum [lepra reaction] in one case and erythema with swelling and aching of the extremities in another; the acute inflammation, however, disappeared within a week.—[From abstract.]



- SATO, T. Fat reduced diet therapy in leprosy. Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 66 (abstract).

Thirty cases were put on a reduced fat diet, that element being 10-12 Gm. per day, one-half of the usual amount. Calories—about 2,500—were not reduced. Improvement was seen in 73 per cent of the group. Among those who improved, cases of the nodular type showed reduction of weight while those of neural type gained.—[From abstract.]

- MUIR, E. Intranasal treatment in leprosy. *Lep. Rev.* 11 (1940) 173-175.

The author advises (1) mild antiseptic treatment on the lines recommended by Parkinson; namely irrigation of the nasal cavities with normal saline with the aid of a pipette while the patient lies sideways on a couch. If there is much nasal catarrh 0.9 per cent ephedrine hydrochloride should be added to the saline. (2) If there is severe sepsis with pus and crusts, the same treatment is advised with longer retention of the saline to soften the crusts, or sodium sulphate may be used up to 10 per cent strength. (3) For dealing with leproma, cauterization with trichloroacetic solution is advised in a 10 per cent solution after the mucous membrane has been anesthetized with a spray of 2 per cent novocaine, and repeated after two weeks. Treatment diminishes the discharge of lepra bacilli from the nose.—[Abstract from *Trop. Dis. Bull.* 38 (1941) 223.]

- GUTIERREZ, C. Algunas consideraciones sobre el tratamiento de las úlceras perforantes plantares. [Considerations of the treatment of perforating plantar ulcers. *Rev. Colombiana Leprol.* 2 (1940-41) 157-159.

The author discusses two methods of treating plantar perforating ulcers. One is medical, by insulin and acetylcholine in alternating injections, the other surgical by lumbar sympathectomy (method of Leriche). For the sole treatment of ulcers the former method is the better, being less inconvenient and dangerous. Considering the mechanism of production of perforating ulcers, he calls attention to the necessity of previously removing bones of the feet that have advanced lesions.—M. BERNAL LONDOÑO

- AUGUSTO SOARES, J. Mal perforante plantar. Tratamento intro arterial pela *Padutina e vacina antipiogena* Behring. [Perforating ulcer; intra-arterial treatment by Padutina and by the antipyogenic vaccine of Behring.] *Rev. Brasileira Leprol.* 9 (1941) 165-175.

This report, from the children's and women's section of the Itanhenga colony, concludes with the statement that the treatment indicated by the title has given particularly favorable results (illustrated by photographs), without ill effects in any case. Pain is alleviated and the ulcer is almost always cured.—[From author's summary.]

- LONDOÑO GARCIA, V. Observaciones de lesiones troficas leprosas de los miembros inferiores y su tratamiento por la simpatectomia lumbar. [On trophic leprous lesions of the lower limbs and their treatment by lumbar sympathectomy.] *Rev. Colombiana Leprol.* 2 (1940-41) 151-156.

Presenting four cases treated by this method, the author reports that the painful crisis disappeared, the anesthesia and the trophic lesions of the skin diminished, the amyotrophy was delayed and the perforating plantar

ulcers healed in three weeks. Bone and articular lesions have also improved. He regards this treatment as the best one for this condition.

—M. BERNAL LONDOÑO

SILVEIRA, L. M. Correcao cirurgica das hipertrophias do lóbulo da orelha. [Surgical correction of hypertrophy of the earlobe.] Rev. Brasileira Leprol. 8 (1940) 1-3.

The author describes operations devised to relieve patients with advanced (lepomatous) leprosy of the stigma resulting from gross enlargement of the earlobe. These lesions are classified as (a) simple hypertrophy, in which there is no deformity of the lobe, and (b) complicated hypertrophy, with marked deformity. The technique, which takes into account the distribution of the lines of tension of the skin of the ear, is illustrated by drawing [see cut] which represents the two types mentioned and the appearances resulting from removal of the excess tissue. Photographs taken before and after operation illustrate the excellent cosmetic effects.

—H. W. W.



Surgical correction of hypertrophy of the ear lobe

PRUDENTE, A. La correction chirurgicale des diformités nasales occasionnées par la lèpre. [Surgical correction of the nasal deformities caused by leprosy.] Presse méd. 48 (1940) 156-158.

The author recounts the various nasal deformities in leprosy and their causation with illustrations including fallen and contracted noses. He

uses two procedures: (a) simple inclusion of resistant material to replace the cartilagenous framework, and (b) skin transplantation to replace the surface structure. The first operation depends upon the nature of the cartilagenous destruction. Simple saddle-back deformity, in which there is rarely any respiratory trouble, is corrected with the object of improving the appearance. He employs ivory, though it is often condemned as having the disadvantages of a foreign body; but cartilagenous grafts in a leprosy person are liable to be absorbed, and paraffin wax does not give good results in the leprosy skin. Ivory is well tolerated, resists absorption, and can be moulded to the desired shape. The piece introduced must be smaller than the seat in which it is to be placed, at least 3 or 4 mm. in each diameter. When there is falling of the point of the nose it is necessary to make a new inclusion at the level of the septum, but in these cases the ivory does not give as good results because the skin lacks elasticity. In the severer cases, where the skin is destroyed, the nose is reconstructed by taking a flap of skin from the forehead. Illustrations show apparently satisfactory results.—[From abstract in *Lep. Rev.* 11 (1940) 180.]

DHARMENDRA. "Tugaraka" of ancient Hindu medicine is *Hydnocarpus wightiana* and not *Gynocardia odorata* or *Taraktogenos kurzii*. *Lep. in India* 13 (1941) 51-53.

A consideration of the distribution of *Gynocardia odorata*, *Taraktogenos kurzii*, and *Hydnocarpus wightiana*, and of the habitat of "tugaraka" of ancient Hindu medicine as given by the writer Sushruta, leads to the conclusion that that plant is neither of the first two, as is generally believed, but the last one. During the last twenty years the hydnocarpus oil has for various reasons almost entirely replaced the true chaulmoogra oil of commerce in the treatment of leprosy, and it appears that this is a reversion to the practice of the ancient Hindu physicians.—[From author's summary.]

WAGNER-JAUREG, T. and ARNOLD, H. Ueber Cycloalkylfettsäuren und ihre chemotherapeutische Prüfung bei Lepra und Tuberkulose. [Cycloalkyl fatty acids and their chemotherapeutic trial in leprosy and tuberculosis.] *Arb. staatl. Inst. f. exper. Therap.* 37 (1939) 22-27.

Since the beginning of the 6th century the natives of various tropical countries have used chaulmoogra oil. The benzyl esters are best tolerated, since the local anesthetizing effect of benzyl alcohol lessens the local irritating action. The author has prepared the benzyl esters and the sodium salts of a number of the synthetic fatty acids of the most varied constitution prepared by Adams, and also two esters of cinnamic acid with alcohols, and these have been tried experimentally in animals infected with rat leprosy. Chemotherapeutic tests on leprosy of the mice were carried out by R. Kudicke, those on tuberculosis of guinea-pig by R. Prigge, and the investigation of rat leprosy by L. Lautenschläger (Höchst). After several months of treatment none of the preparations used had any noteworthy influence on the development of the leprosy or on the multiplication of rat leprosy bacteria. No substance proved to be better than Antileprol (chaulmoogric acid benzyl ester.)—[From abstract in *Arch. Schiffs- u. Tropen-Hyg.* 44 (1940) 388.]

- KUDICKE, R. Experimentelle Untersuchungen zur Behandlung der Lepra. [Experimental investigation on the treatment of leprosy.] *Med. Welt.* 14 (1910) 30-35.

The author reports on a long series of experimental trials on white mice infected subcutaneously with rat leprosy, of various preparations made with the idea of enhancing the undoubted but relatively limited effectiveness of chaulmoogra drugs or of finding more effective remedies. The lesions produced in these animals (more than 2,500 inoculated) are flat, raised, infiltrated areas, which may go on to ulceration in the neighborhood of the groin or axilla. The degree of infection at a given date is estimated by the average size of the lesions in the treated as compared with the untreated, and the presence of bacilli in the lesions as ascertained by puncture. Three classes of substances were tested: (a) Various esters of chaulmoogric and hydnocarpic acids and certain other compounds. Material retardation of development of the leprosy lesions was obtained with isopropylbenzyl ester, glycol-cinnamic-acid, glycol-acid-chaulmoogryl ester and the sodium salt of monochaulmoogryl-glycerophosphoric acid. (b) Cinnamon preparations. The most effective were cinnamic-acid-olein ester, cinnamon-glycol-chaulmoogryl ester, cinnamon-allylauryl-ethyl ester and ricinol-acid-chaulmoogryl ester. (c) Chaulmoogric esters with which had been combined a radicle of rhodanid, which has been found to have lethal action on tubercle bacilli. The best results were obtained with chaulmoogryl-rhodanid plus chaulmoogryl-cholinrhodanid and with oleyl-rhodanid. Only retardation of progress of the leprosy infections was obtained, but the more active preparations are considered worthy of further study, since any drugs that increase the resistance of animals to leprotic infections are likely to prove of value in the treatment of the human disease.—[From abstracts.]

- DE, N. K. Preservative effect of creosote on hydnocarpus oil. *Lep. in India* 12 (1940) 55-58.

This effect was determined by changes in the acid value, peroxide value, and specific rotation. The results of various controlled experiments suggest that creosote may act as an anti-oxidant when hydnocarpus oil with a comparatively high peroxide value is stored under conditions which accelerate oxidation, i.e., when it is kept exposed to air, light, and foreign impurities. Obtaining a supply of good oil and its proper storage are, however, much more important than the addition of creosote to it. —[Abstract from *Lep. Rev.* 11 (1940) 178.]

- DE SOUZA-ARAÚJO, H. C. and CARDOSO, H. T. Valor impediante dos ácidos da série chaulmoogrica em relação a certas culturas de bacilos ácido-alcool resistentes. Identica cerificação com o "Alfon." [The inhibitory power of the acids of the chaulmoogra series and of "Alfon" in relation of certain cultures of acid-alcohol-fast bacilli.] *Brasil-Med.* 54 (1940) 637-642.

The authors have investigated this matter with the four new acids of the chaulmoogra series isolated in 1938-39 by Cole and Cardoso, using cultures from the collection of the Institut Oswaldo Cruz. The substances used were sodium chaulmoograte, sodium aleprilate, sodium gorlate, sodium palmitate, and "Alfon." The last-named substance, it was found, is not a bactericide but stimulated multiplication of these organisms. Of the others, the aleprilate and gorlate were the least active inhibitors.—[From ab-

stract in *An. Brasileiros Dermat. e Sifilog* 15 (1940) 311-312.

ABREU, B. E., EMERSON, G. A., and PEOPLES, S. A. Intestinal absorption of chaulmoogra oil. Univ. California Publ. in Pharmacol. 1 (1940) 275-282.

Chaulmoogra oil is absorbed from the intestine of intact rats, after oral administration, at least as well as is a representative edible oil such as olive oil. No significant difference was found between the absorption from loops of small intestine *in situ* of sodium chaulmoograte and sodium oleate.—[Author's abstract.]

YOSHINAGA, T. Studies on the absorption through the skin of hydncarpus oil and its conductor. I. Report. The absorption of hydncarpus oil and its conductor with mixture of Jodkali or Salicyl acid Trans. 13th Meet., Japanese Lep. Asso., 1939; *La Lepro* 11 (1940) suppl. p. 73 (abstract).

—Idem. II. Report. The change of quantity of secretion of Ca., N., and S. in the urine by the absorption of hydncarpus oil through the skin and its conductor. *Ibid.*

(1) The absorption through the skin of hydncarpus oil or ethyl hydncarpate, with admixture of potassium iodide or salicylic acid, has been studied by observation of the appearance and disappearance of these additives in the urine. Olive oil with the same drugs was used as the control. The appearance of these drugs was much the same with hydncarpus and olive oils, but better with the ethyl hydncarpate.

(2) The influence of the administration of hydncarpus oil and ethyl hydncarpate through the skin on the quantity of calcium, nitrogen, and sulphur in the urine was investigated. These were found to be increased. When olive oil was used, however, there was no change.—[From abstract.]

YAMASHITA, K. Ueber den Blutcarbonsaeure-Gehalt der Leprösen. [Carbon dioxide in the blood of lepers.] Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 72-73 (abstract).

The carbon dioxide content of the blood was found to be more or less reduced in all cases. This change is not dependent upon the type of the disease but upon its degree; hence it does not always parallel the sedimentation rate or the blood-cell picture.—[From abstract.]

BOSQ, P. Variedades histopatológicas de las estructuras tuberculoides de la lepra cutánea: su significación. [Histological varieties of the tuberculoid structures of the skin and their significance.] *Rev. Assoc. Méd. Argentine* 54 (1940) 115-118.

The author, following Rabello Jr., describes the distinct type manifested by tuberculoid leprosy of the skin, namely, pretuberculoid, sarcoid, lupoid, and colloquative. He insists on the clearly perivascular topography of the lesions, these being found deeply or superficially in the skin and sometimes giving rise to localized parakeratosis. There are no bacilli in these lesions; these appear only transiently in reactional phases.

—G. BASOMBRIO

NOLASCO, J. O. and LARA, C. B. Histopathology of early lesions in fourteen children of lepers. I. Analysis of previous skin blemishes in relation to sites of biopsies and other positive and probable lesions. *Philippine J. Sc.* 71 (1940) 321-359.

Biopsy specimens of very early lesions in 14 young children of lepers, aged from 15 to 39 months, were studied. (*a*) In 8, the lesions when first observed were papular, or flat and wheal-like; (*b*) in 1, there was a pale area, in part slightly granular; (*c*) in 1, a pale, rough area with slight follicular hypertrophy; (*d*) in 3, indurated scarlike area. Of group (*a*), 5 were found bacteriologically positive on the day they were discovered or subsequently. All others were negative except for one of group (*d*). Histologically, 11 showed definite tuberculoid changes, the lesion-foci usually small but in two specimens more or less extensive. In the other three some of the large monocytes present in two were undergoing epithelioid changes; the other one showed only round-cell infiltrations mixed with a few monocytes, usually perivascular but also within hair muscles. In 11 instances, including one nontuberculoid lesion, the most superficial foci were in close contact with the germinal epithelium, which showed more or less fraying and invasion by a few monocytes. Early involvement of the small nerves was equally frequent. In two of the lesions developing in indurated scars, apparently of scabies, the scars were identified in the sections. Because in all but two of these children the lesions were multiple (2 to 7), the possibility that previous skin affections had favored the implantation of the infection is discussed. All but one child showed blemishes on the trunk, but leprosy lesions were relatively rare there, a fact attributed to protection by clothing. The thickened papular lesions, because of their multiple localization and tendency to show bacilli very early, may represent primary inoculation foci.

MARINO BECHELLI, L. and DA SILVA E OLIVEIRA, A. B. Comentários sobre os resultados histopatológicos de piópsias praticadas em pele aparentemente são e descamante, em doentes de lepra. [On the histopathological findings in biopsies of apparently normal skin in cases of leprosy.] *Rev. Brasileira Leprol.* 7 (1939) Spec. No. pp. 265-276.

The conditions found are classed in three groups: (*a*) no inflammatory changes (in 5 neural cases and 1 mixed, in agreement with the dermatological observations); (*b*) nonspecific chronic inflammatory changes (in 6 neural cases and 1 mixed); and (*c*) specific inflammatory changes: lepromatous infiltrations (2 mixed cases), an atypical tuberculoid infiltration and a tuberculoid reactive focus (1 case each, clinically of corresponding classification), and coexistence of lepromatous infiltration and a more or less nodular structure (1 lepromatous case). Such findings lead them to think, as Capelli does, "that in the apparently healthy integument a certain condition exists, which may be called potential, corresponding more or less to the type of the lesions present in other parts of the body." They explain the coexistence of lepromatous infiltration together with nodular changes as a state of local hyperergia, and discuss the question of whether such hyperergia can be extended later to the whole body, changing the disease from the lepromatous to the tuberculoid neural type.—[From author's summary.]

YOSHIE, Y. Pathologische Untersuchung über Kehlkopflepra. II. Mitteilung. Ueber das Verhalten von Gitterfasern im leprösen Herd im Kehlkopf. [Pathological investigation of leprosy of the larynx. II. The behavior of the reticulum fibres in leprosy foci in the larynx.] *Trans. 13th Meet., Japanese Lep. Assoc., 1939; La Lepro.* 11 (1940) suppl. 76-77 (abstract).

The author has investigated, employing the Bielschowsky-Maresch silver method, the behavior and significance of the reticulum fibers of the proliferated connective tissue in the various lesions of the larynx—diffuse, nodular and tumor-like infiltrations, fresh and old. Findings: (a) In leprosy infiltrations, especially in high-grade nodules, this element is increased to form a thick network, beginning almost as soon as the first infiltration can be observed. (b) In many nodules the markedly increased reticulum presents a net-like or a basket-plexus-like arrangement. The fibers are in general thicker and stronger than those in the tubercle, and are soon converted into precollagen fibers, more violet in color. (c) In leprosy ulcers the reticulum fibers often do not lose the property of silver impregnation for a long time, in spite of the decomposition of the tissue. In the necrotic areas the network first breaks up into short, small pieces, then loses the specific staining character and becomes unrecognizable. (d) The fibers grow around the lepra cells. Around the larger of them there can be observed a thick layer of precollagenic character, from which fiber branches extend toward the surrounding structure. In the peripheral part of the nodule these precollagen fibers become converted into collagen. (e) The multiplication of the connective tissue in leprosy foci is probably effected in two ways, partly through the proliferation of the connective tissue itself and partly through the conversion into collagen fiber of the increased reticulum fibers.—[From abstract.]

SATO, T. Leprosy of the upper respiratory tract. Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 77-79 (abstract.)

This report [somewhat detailed] is of the pathology of the nasal cavity and the accessory sinuses, based on material from 30 cadavers. The lesions usually seen macroscopically are listed; diffuse infiltration of the mucosa is frequent, but nodules or atrophy are comparatively rare. Perforation of the septum was present in 50 per cent. The turbinates are usually atrophied, moderately or to the point of extinction. The histological changes are of the same nature as usual in the mucous membrane generally, but of relatively marked degree and usually of long standing. The cartilages and bones are gradually eroded, in saw-blade form, from their margins. The bone marrow of the septum shows manifest leprotic affection, with sequestrum formation (leprotic osteomyelitis) and atrophy. The leprotic infiltration at first consists of foamy cells, later undergoing fibrosis. The mucosa becomes shortened and flattened, to change into a flat, two-layered structure; multiplication of the goblet cells may be seen at an early stage, to compensate for disturbance of the mucous glands. The changes in the accessory cavities are, in general, very slight. When most marked the infiltration is in the deeper layer, of foamy character; it undergoes gelatinous degeneration in places, as does ordinary inflammation in this location. It is believed that the main course of diffusion of the infection into these cavities is by way of the mucous membrane of the openings into the nasal cavity, the vascular route being secondary.—[From abstract.]

YOSHIE, Y. Ueber die Rhinitis bei Lepra maculosa in frühen Stadien. [Rhinitis in the early stages of macular leprosy.] Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 82 (abstract.)

Though in the early stages of nodular leprosy, when there are few or slight skin lesions, leprosy changes can usually be found in the upper air

passages, especially in the nose, it is not yet certain whether or not lesions (*flecke*) of the mucosa can be found in macular leprosy. The author found none in 93 cases. However, he has recently seen a specific acute rhinitis in three early cases. In one of them he performed conchotomy of both lower turbinates and found through histologic examination that the changes in this tissue were essentially the same as those of the skin lesions. Clinically, the mucosa was diffusely and markedly swollen, highly infiltrated, and more pinkish than normal, the color-tone brighter than is usual in ordinary acute rhinitis. The consistence of the turbinates was doughy. The nasal secretion was only slightly increased. On the lower turbinate and the anterior part of the septum, sensitivity was diminished. Histologically there was found round-cell infiltration of the mucosa and around the nerves of the submucosa and near the periosteum. Small numbers of bacilli were found in these nerve bundles, sometimes in clumps. From these findings the author is of the opinion that the macular changes of the nasal mucosa appear not in the form of spots, but of rhinitis.—[From abstract.]

OBERDOERFFER, M. J. and COLLIER, D. R. Roentgenological observations in leprosy. *American J. Roentgenol.* **44** (1940) 386-395.

The authors report and illustrate their observations on the X-ray appearances in a number of cases of neural (tuberculoid) and lepromatous types. In tuberculoid leprosy they found the bone atrophy most marked in those bones the muscular insertions of which are supplied by the nerves most frequently damaged by the disease—the ulnar, the median at the wrist, the peroneal, and the posterior tibial at the ankle. In lepromatous cases the atrophy is earliest and most extensive in the distal phalanges. The differences in these changes in the two types are of some diagnostic value. The essential change in the bones of mutilated hands and feet is atrophy of the ivory and cancellous tissues, of various degrees. They assume that the disturbances of nutrition which cause these changes are due to the inactivation of the inserted muscles, resulting from nerve destruction. They therefore advise training of these muscles as likely to prevent such end results, and they support the orthopedic recommendations of Dow.—[From abstract in *Trop. Dis. Bull.* **38** (1941) 220.]

INABA, T. Ueber die allgemeine Amyloidose an den Leichen Lepröser. [General amyloidosis in leprosy.] *La Lepro* **11** (1940) suppl. p. 89 (abstract).

Amyloidosis was found in 12 of 109 bodies of leprosy patients examined (11 per cent). The iodine-sulphuric acid and the Congo-red reactions were positive, the iodine reaction and metachromasis negative; hence the author regards the substance present as a precursor of amyloid, which he calls "Frühamyloid." For its demonstration, Congo-red staining is best. The author has described a new Congo-red-sulphuric acid reaction. The condition is seen first in the spleen, the other organs most affected being the thyroid, salivary gland, and kidney, the last two being especially notable. As for the background, tuberculosis was present in 6 cases and chronic suppuration in 3, but in the other three leprosy was uncomplicated.—[From abstract.]



INABA, T. Ueber die experimentelle Amyloidose bei Kaninchen durch wiederholte Injektionen von den toten Tuberkelbazillen. [Experimental amyloidosis in rabbits caused by repeated injections of tubercle bacilli.] *La Lepro* **11** (1940) suppl. p. 91 (abstract).

Repeated injections of the rabbit with killed tubercle bacilli resulted in general amyloidosis. The best route of injection is the intraperitoneal one, then the subcutaneous; intravenous injections are not effective. The kidney was affected primarily, the deposition of amyloid in the spleen being relatively less.—[From abstract.]

GANDRA, A. S. Contribuição ao estudo da hematologia na lepra. Lepra tuberculoide reacional. Formula leucocitaria e hemograma. [Contribution to the hematology of leprosy; reactional tuberculoid leprosy; leucocyte formula and hemogram.] *Rev. Brasileira Leprol.* **9** (1941) 27-64.

Neither tuberculoid leprosy, reactional or quiescent, nor lepromatous leprosy has a blood picture sufficiently characteristic to be diagnostic. Its variations are similar in all forms of the disease, and are of prognostic significance. The clinical, pathological, and hematological features of reactional tuberculoid leprosy show that it is a special stage of tuberculoid leprosy, quite different from the lepra reaction of the lepromatous form. Anemia is seen mainly in cases of the severe forms of the disease, or in reactional crises. Eosinophilia is often found and indicates the interference of allergic phenomena. Leucopenia is more often found than leucocytosis. The hemogram shows a deviation to the left, without attaining myeloid reaction.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* **16** (1941) 184.]

ZOCCHIO, J. B. Bacilemia na lepra. (Bacillemia in leprosy.) *Rev. Brasileira Leprol.* **8** (1940) 269-299.

The author reports the results of a study of 1,083 cases by the thick-drop technique and the methods of Crow and Rivas Smith. (a) In lepromatous cases, bacillemia was found in 42 per cent; among them (and also among the mixed cases) the frequency was very much greater (up to 75 per cent) in those not treated or insufficiently treated. (b) In neural cases, only 1 per cent showed bacillemia; this was not found in anesthetic or tuberculoid cases. (c) In mixed cases, 41 per cent. (d) In cases with lepra reaction, 58 per cent, much more in acute reaction (86 per cent) than in the subacute condition (42 per cent). Acid-fast granulation was seen most frequently in cases under chaulmoogra treatment, and it showed a relation to the intensity of treatment. The methods of Rivas Smith and of Crow (especially the latter, which has the advantage of simplicity) were found to be the best. (From abstract in *An. Brasileiros Dermat. e Sifilog.* **15** (1940) 307.)

HAYASHI, F. Subcutaneous residua of injected chaulmoogra oil in leprosy. *Trans. 13th Meet., Japanese Lep. Assoc., 1939; La Lepro* **11** (1940) suppl. 80 (abstract).

Subcutaneous residua of injected chaulmoogra oil are often seen at autopsy, and on careful examination they can always be found. On the basis of the findings in autopsy material from one resorbed lepromatous case, the author describes (a) large milky-white globules, similar to normal

solid chaulmoogra oil at low temperatures, and (b) smaller, grayish-yellow globules. Both kinds are surrounded by infiltration. The second kind is the more resistant to chemicals and heat [an experimental observation is described], and after Ziehl-Neelsen staining it is of a deep violet color. A tabulation gives the staining reactions, to several dyes, of both of the kinds of globules described and also of a "gray-yellow granulated cell." An experiment involving the introduction of chaulmoogra and olive oils and of solid paraffin into the muscles of rabbits failed to give analogous residua after 9 or 13 days.—[From abstract.]

FIELDING, J. W. Staining acid-fast bacilli; the effects of fixatives and H-ion concentration on acid-fastness. *Australian J. Exper. Biol. & Med. Sci.* **12** (1934) 1-5.

Acid-fast bacilli vary in their intensity of staining, and in tissue preserved by formalin or other fixatives they may lose that character. The author's experiments indicate that loss of acid-fastness is due to low pH values of either the fixative or the stain, and that that change in fixed tissue is due to lowering of the pH value of fixing solutions through autolysis. In sections destruction of staining power is accentuated by use of fluids of acid reaction (alcohol, xylol, balsam, etc.), and by finally bringing them in contact with a carbolic-acid stain (pH 2.0). After smears of tubercle bacilli were boiled in one per cent hydrochloric acid, no acid-fast organisms could be found. When bulky tissue was placed in 10 per cent formalin, supersaturated with sodium bicarbonate (initial pH 8.0), autolytic action was responsible in one case for a reduction to pH 4.0 within 49 days. Testing the statement of Dreyer that tubercle bacilli become non-acid-fast after heating to 100° C. in 40 per cent formalin and extracting in acetone at 65-70° C. for 24 hours, he found that there was no such change when alkaline formalin and alkaline acetone were used. He obtained excellent results with tuberculous or leprosy tissues by the following methods: (1) Fixation of small pieces in 10 per cent formalin containing 0.5 per cent sodium bicarbonate and staining with Ziehl-Neelsen. Lung tissue containing numerous acid-fast organisms was so fixed for two weeks. Sections stained with Ziehl-Neelsen were washed and placed in 15 per cent sulphuric; they were removed at intervals, counterstained, and examined.

After two weeks in the acid there was no loss of acid-fastness, whereas with similar tissue fixed in ordinary 10 per cent formalin for a month, sections similarly treated lost 80 per cent of their staining property within 66 hours. (2) Staining ordinarily-fixed tissue with an alkaline fuchsin mixture made up in two solutions: (a) 0.25 per cent sodium bicarbonate solution and (b) basic fuchsin, 1.5 Gm., dissolved in 40 cc. absolute alcohol and made up to 400 cc. with tap water; the two solutions are mixed, 1:3, immediately before use. Either steam for three minutes or heat the mixture to boiling and pour it on the slide, staining for at least 10 minutes. Wash in running water, decolorize for 2 minutes in 15 per cent sulphuric, wash and counterstain for 2 minutes with one per cent methylene blue.—[From abstract in *Lep. Rev.* **11** (1940) 150.]

HALLBERG, V. A new method for staining tubercle bacilli. (With a note by J. Reenstierna on the use of this method for staining leprosy bacilli.) *Acta Med. Scandinavica* **108** (1941) 11-17.

The stain used is "Nachtblau" (Grübler); counterstain: neutral red,

pyronin, carbol-fuchsin, or vesuvin. Koch bacilli take a more or less dark blue color, are easier to find in tuberculous material than after the Ziehl-Neelsen method, and seem to occur in greater numbers. Films and sections originally stained by Ziehl-Neelsen may easily be stained afterward with Nachtblau. Other micro-organisms occurring in tuberculous materials have been found to take the counterstain, with the sole exception of a fungus of yeast-oidium type (ovoid, round and pear-shaped), observed by Reenstierna in 1912, that is sometimes seen in such materials; parts of this fungus stain dark blue. The Nachtblau stain has also been used on sections of lymphatic glands from three cases of Schaumann's disease (lymphogranulomatosis benigna). In all three, after prolonged search, Hallberg found occasional fungus cells of the Reenstierna type [see papers by Schaumann and Hallberg, *Acta. Med. Scandinavica*, 1941, vols. 106 and 107] and in one of them a few rods which morphologically and tinctorially conformed exactly to the Koch bacillus. Reenstierna, using the new method on various kinds of leprous material (sections of lepromata, blood films, and nasal smears), has found the Hansen bacillus to stain in quite the same manner as that of Koch. He was also able to detect blue-stained fungus cells, corresponding to the type described by him, in blood and nasal smears from lepers in different countries.

—J. SCHAUMANN

COWDRY, E. V. Cytological studies on globi in leprosy. *Am. J. Path.* **16** (1940) 103-135.

The author has attempted to settle definitely the old question of the nature and location of the conspicuous globular masses of bacilli, or "globi," of lepromatous leprosy, studying such material from several countries and, for comparison, specimens of tuberculoid leprosy, water-buffalo leprosy, Johne's disease, and human tuberculosis. Variations of fixation did not affect materially staining by the Ziehl-Neelsen method. Carpano's method [see *THE JOURNAL* **5** (1937) 389] gave beautiful preparations. A method of staining both bacilli and lipoid in frozen sections (carbol-fuchsin and Sudan IV) is given. The vast majority of bacilli are intracellular, mainly in "monocytes, macrophages (epithelioid cells), giant cells, 'foam' or Virchow cells, vascular endothelial cells, and neutrophilic leucocytes"; occasionally in epithelial cells, lymphatic endothelium, fat cells, and the "mesenchymatous cells of the perineurium, epineurium, and endoneurium"; doubtfully in eosinophils, basophils, or the cells of the sheath of Schwann; not in lymphocytes or plasma cells. In lymph nodes, they also occur in reticular and littoral cells. How entry is effected is not known; it is not, the author holds, simply a question of contact, nor is it likely that they invade actively. They may be accumulated in the cytoplasm without definite order, or in cigar-pack form, or in "seed" or giant globi; they need not produce cigar packs, nor need the latter develop to produce globi. Giant globi may remain solitary, or they may partly coalesce and give rise to a "cactus" form. Cigar packs (bacilli closely pressed together) are most noticeable in macrophages and reticular and giant cells. Seed globi (resembling oat seeds) are wider and longer, ends tending to taper; they contain more fluid and some *Schleim*—which, it is stated, is not fatty. Giant globi contain more of both of these elements. As they enlarge, the containing cells are altered until the investment of the largest of such bodies is difficult to identify. There is much negative evidence against the concept that they are lodged in lymphatics, including the lack of endothelium

backed by fibrous tissue around them, and their development in tissues devoid of lymphatics. Hence it is concluded that giant globi develop intracellularly in giant cells derived from components of the reticulo-endothelial system—monocytes, histiocytes, macrophages, reticular cells and, as representatives of special endothelium, littoral cells of lymphoid sinuses. The globi of human leprosy show resemblances to those of water-buffalo leprosy, but differ markedly from the rosettes of rat-leprosy and the peripheral bodies in Johne's disease. In none of these diseases is there evidence that the distinctive agglomerations of organisms are formed extracellularly in lymphatics; at least the smaller globi in water-buffalo leprosy, and the structure mentioned in the other conditions, develop within cells of the reticulo-endothelial system much as do globi in human leprosy.—H. W. W.

SHIMIZU, K. Ueber die Lepraglobi. [On the globi of leprosy.] Japan. *Ztschr. f. Dermat. u. Urol.* 48 (1940) 51 (abstract).

The author has followed leprosy globi through serial sections for 200 microns, and by means of a simple apparatus he has demonstrated a method of reconstruction.—[From abstract.]

DE SOUZA-ARAÚJO, H. C. As diferenças entre "globi" (Neisser) e "globies" (Marchoux). [The difference between the "globi" of Neisser and the "globies" of Marchoux.] *Acta Méd. Rio de Janeiro* 6 (1940) 25-32.

The globus of Neisser, according to the author's definition, "is constituted of accumulation of leprosy cells filled with bacilli and in juxtaposition," while the globie of Marchoux is a zoological mass, specific for leprosy. Based on the work of Denney, he proposes to substitute the term "colony" for these words. [This subject was discussed by the author at the Cairo conference; see *THE JOURNAL* 6 (1938) 466.]—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 15 (1940) 306.]

HOFFMANN, W. H. On the limits of the bacteriological diagnosis of leprosy. *J. Trop. Med.* 43 (1940) 234-236 and 243-245.

The author stresses the danger of diagnosing leprosy on the mere finding of acid-fast bacilli, owing to the frequency with which nonpathogenic ones originating in the soil or water may be present in the nasal or urinary secretions or the mouth. These may sometimes resemble the bacillus of leprosy, but in other cases they can be distinguished by their morphology or by their ready growth on ordinary media. He narrates cases with gangrenous limbs which were admitted to a leper hospital because of the presence in the ulcers of acid-fast bacilli which, however, were not of characteristic morphology. He thought that the patients might have been saved by amputation, but he could get no surgeon to operate. In confirmation he cites observations of Recio, who found saprophytic acid-fasts in the saliva of 40 consecutive healthy persons by centrifuging and staining, often confirmed by positive cultures. Leprosy should not, therefore, be diagnosed in the absence of clinical symptoms merely on the strength of finding acid-fast bacilli in ulcers or secretions.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 222-223.]

NAGAI, Y. and FUKUDA, T. Cutis verticis gyrata und Lepra. [Cutis verticis gyrata and leprosy.] *La Lepro* 11 (1940) suppl. 41 (abstract).

Two cases are described. The first is one of the kind stated, misdiag-

nosed as nodular leprosy. The second was of another kind, seborroea oleorosa, similarly mistaken for leprosy because of infiltration, ulceration, and the fact that the discharge contained acid-fast bacilli. These organisms, however, did not have the globus arrangement of the leprosy bacillus, but appeared rather like that of tuberculosis, though cultures and animal inoculations were negative.—[From abstract.]

DHARMENDRA and LOWE, J. Attempts at transmission of human leprosy to Syrian hamsters. *Indian J. Med. Res.* 28 (1940) 61-69.

The authors report attempts to infect 23 Syrian hamsters, some previously splenectomized, by intraperitoneal injection or by subcutaneous implantations of nodular leprosy material from the ear. The experiment was conducted in both Calcutta in the lowlands and Kasauli in the mountains, with no difference in the results. Six of the animals died in 3 weeks because of an accident; two lived for 6 and 8 months; the remaining 15 were killed between the 9th and 12th months. In 9 of the 13 animals with implanted tissue, the implants could be found, not appreciably enlarged, still containing large numbers of bacilli. In only two animals—they only from the group that died early—were slight macroscopic lesions and bacilli found elsewhere than in the nodule at the site of injection; they showed slight enlargement and congestion of the local lymph nodes. In two others a few bacilli without visible lesions were found, once in an inguinal node and once in the omentum. It is concluded that, though the bacilli can persist in the implanted nodule for long periods, and though the possibility of their multiplication in such implants cannot be disproved, the inoculations were not followed by a generalized or progressive infection. The reports of Adler and of Burnet that the Syrian hamster is susceptible to human leprosy are not confirmed, possibly because none of the individual animals happened to be susceptible (in which case the species is not of real value), possibly because the susceptibility of the hamsters differs in different localities (as the guinea-pig is said to be less susceptible to human tuberculosis in India than elsewhere); also possibly because other workers had not made sufficient allowance for lesions produced by injected bacilli persisting for a long time without multiplication. —H. W. W.

NAGAI, K. and HAYASHI, F. Inoculating experiment of human and rat-lepromas in the muscle of hens. *Trans. 13th Meet., Japanese Lep. Assoc., 1939; La Lepro* 11 (1940) suppl. 62-64 (abstract.)

This is a lengthy summary of work done over a period of two years in an attempt to confirm reports of other workers. Being uncertain if actual multiplication of injected bacilli in the hen had been secured, they paralleled all inoculations of living material, whether human or rat, with similar injections of boiled material, and studied the resulting lesions histologically. Their experiments also differed from those of others in that they used nodules for the inocula instead of emulsions of them (which, however, they admit should be more effective in causing an infection), assuming that if multiplication actually occurred the fact would be evident in differences around the fresh and boiled tissue implanted. In the usual experiment with suspensions the phagocytes take up both the bacilli and the leprosy lipid injected, whether the inoculum is fresh or boiled, and it is virtually impossible to distinguish between the cells so loaded and the true leprosy foamy cell; also, because of the great number of bacilli injected, it is very difficult to tell if

multiplication occurs. The fowls inoculated with human leprosy material were examined after 58 days and 10 months, the others after 44 days. (It is stated, incidentally, that the rat bacillus seems to be more virulent than the human one; suspensions of it cause much stronger Mitsuda reactions than lepromin.) They found little difference, with either organism, between the reactions of the hen's muscles to the raw and boiled lepromas, and no remarkable tendency to multiplication of either organism was seen. Pure masses of the bacilli of the implanted nodules, the tissue of which degenerates, persist in a sort of cyst, surrounded by cylindrical epithelioid cells which later become giant cells. There was little difference in size between the cysts produced by raw and boiled nodules. Around these cysts may be found smaller foci, ascribed to reaction to small particles of the nodule disseminated in the inoculation. The reaction found after 10 months was somewhat weaker than after 48 days.

—H. W. W.

NONAKA, N. Infection tests with lepra bacillus on chickens. Saikingaku Zasshi (1940) Nos. 528 and 529 (Jan. and Feb.)

Emulsions of human and rat leprosy tissues, unheated and heated, were filtered through the Chamberland filter and the filtrates and precipitates were inoculated into the chest muscles of chickens. When the supposed leprosy changes had occurred at the site of inoculation, the tissue was subinoculated into new chickens. (Transfer was possible for only two generations.) Such tissues were examined histologically. It was concluded that the chicken is not susceptible to either of the organisms used; the changes produced were merely reactions to the inoculation. Increase of the organisms is doubtful; their life is comparatively short, and even the rat leprosy bacillus—which appears to be alive the longer—loses its pathogenicity.—[From abstract in *Kitasato Arch. Exper. Med.* 17 (1940) suppl. 2.]

COCHRANE, R. G., RAJAGOPALAN, G., SANTRA, I., and PAUL RAJ, M. A study of the lepromin reaction in children with special reference to contact. *Lep. in India* 13 (1941) 5-13.

The results of 276 lepromin tests in the children's clinic are analyzed and compared with data from the Lady Willingdon Leprosy Sanatorium. In healthy persons the older age group tends to give a higher percentage of positives. How far this is due to small subminimal infection it is impossible to say, because of the small numbers concerned and the absence of information from nonendemic areas. It is asked if this is one of the reasons why adults are less susceptible to leprosy than children. In children the positive reactors appear to decrease as the closeness of contact increases. The authors believe that the more intimate the contact in early life the more likely is it that cellular resistance will be broken down. If it could be established that lepromin-negative children become lepromatous in adult life more frequently than do positive reactors, this would be of help in the campaign against leprosy. It is thought, though definite evidence is lacking, that cellular resistance tends to be broken down before clinical leprosy is established. The importance of carrying out routine lepromin tests at properly equipped centers, and the necessity of repeating these at frequent intervals, is therefore stressed.—[From authors' summary.]

[The fact that repeated testing with lepromin induces artificially a state of reactivity, as shown by Bargehr at an early date and others more

recently, and therefore cannot reveal any spontaneous change of reactivity, is overlooked.—EDITOR]

- MAEDA, T. B.C.G. injection and its effect on Mitsuda's and Mantoux reactions in infancy. Trans. 13th Meet., Japanese Lep. Assoc., 1939; *La Lepro* 11 (1940) suppl. 68-69 (abstract).

In considering the fact that the Mitsuda reaction is weak in infancy, corresponding with the greater susceptibility to infection—the reaction evidencing low resistance—the author asks why resistance is low in this period and how it is increased in the next ten years. “Biologische Reifung” may be the chief reason, but how is this “Reifung” gained? To ascertain if injection of other acid-fast organisms would increase the reaction, the author injected 36 nonleprous children between 2 and 14 years of age with BCG, 0.002 mg. Mitsuda (and Mantoux) tests were made some two months before and ten weeks after the injections. Two children originally negative became positive (2+) and in 14 that gave weak reactions (1+ and 2+) the response became one or two degrees stronger; the other 18 (originally 2+ and 3+) remained unchanged. By-effects were negligible except for more or less pain *in loco* and the formation of cold abscesses in three instances.—[From abstract.]

- ALAYON, F. L. and DE SOUZA LIMA, L. Sobre a histologia da reação de Mitsuda em lepromatosos; nova contribuição ao seu estudo. [On the histology of the Mitsuda reaction in lepromatous leprosy; new contribution.] *Rev. Brasileira Leprol.* 8 (1940) 367-374.

The findings after the injection of the Mitsuda antigen in 12 lepromatous cases lead to the conclusion that it is rare to find after such injections in the connective tissue of either the skin itself or of the lepromatous infiltrations, lesions specific to the state of hypersensitivity as was observed in two other cases which led to this study. Foci of degeneration or of fibrinoid necrosis or mucoid edema, or the formation of nodular structures, were not found. The injection of lepromin into the leproma causes changes similar to those presented by lepromas during the first days of spontaneous lepra reaction. In other words the artificial superinfection thus produced has effects which parallel, at least histologically, those provoked by the endogenous superinfection occurring in spontaneous lepra reaction.—[From abstract in *An. Brasileiros Dermat. e Sifilog.* 16 (1941) 182.]

- NAYLOR-FOOTE, A. W. and RODRIGUES DE SOUZA, A. Estudos experimentaes para demonstração de proteínas específicas na lepra. [Experimental studies on the demonstration of specific proteins of leprosy; preliminary report.] *Rev. Brasileira Leprol.* 9 (1941) 67-74.

The authors relate cursorily their attempts to make extracts of lepromin, with special reference to one of them (“6-Beta”). This extract was titrated in serum dilutions so that 0.1 cc. contained the minimal quantity required to produce, on intradermal injection of a normal rabbit (1,200 Gm.), a necrotic lesion following an intravenous injection of 1.0 cc. of the unaltered Mitsuda antigen made 12 hours later [Schwartzman phenomenon]. Guinea-pigs sensitized with this antigenic fraction gave anaphylactic shock reactions with various antigens (anaphylactogens), including leprotic nasal mucus, lymph, blood, and urine; these reactions could be pre-

vented by specific desensitization. The Schwartzman phenomenon could be produced with preparations of various materials containing the Hansen bacillus, though the Mitsuda antigen was not always effective. Using their extract for the first injection, the phenomenon was invariably induced when extracts of various leptotic materials, including blood and urine, were used for the second injection. This technique was used for the "experimental serological diagnosis of leprosy" by using for the first injection the antigenic extract mixed with the serum to be tested, a modified "protection test." Using 30 lepromatous and 18 neural cases, and 3 paroled patients and 24 normal controls, it was found that the antigens were neutralized by the sera of leprous persons but not by those of nonleprous. This neutralization is assumed to be an antigen-immune body reaction and therefore to prove the existence of type-specific immune bodies in leprosy. The method has been applied to prognosis by titrating the patients' sera to determine "the percentages needed to neutralize a unit of antigen in 1:20 dilution." Certain differences were found between a group of cases which had never had lepra reaction and one which had had it. [A good deal of clarification of this report would be required to make it fully understandable, at least to the present reviewer.]

—H. W. W.

KAHN, R. L. A serologic verification test in the diagnosis of latent syphilis. *Arch. Dermat. and Syph.* **41** (1940) 817-830.

This article presents experimental evidence that nonspecific positive reactions encountered in the serodiagnosis of syphilis—"general biological reactions," which are relatively widespread, being common in lower animals—can be identified by means of making the Kahn test at other temperatures than that utilized in the standard one (21°C.). In the investigation of this matter the author used sera from various animals and from normal persons and patients with syphilis, leprosy, and other diseases. With the standard test the reactions of positive animals and of syphilitic persons appear to be identical. If, however, parallel tests are made at both 37°C. and 1°C. there are differences: syphilitic sera, strongly positive at temperatures higher than the normal one, tend to be negative at lower ones, whereas the reverse is true of the animal sera. Interest in connection with leprosy lies in the results obtained with the sera of 10 presumably nonsyphilitic cases. With the standard reaction 7 gave 2 to 4+ reactions, the other 3 being doubtful. At the extreme temperatures, however, they were only "borderline positive," with practically no precipitation at 37° but marked precipitation at 1°, this being the animal type of reaction. The results indicate that positive serological reactions which are unrelated to syphilis can be detected by this means.

—H. W. W.

WADA, T. Ueber die Modifikation der Fuchsschen Reaktion. II. Die serochemische Reaktion der Lepra mit der von Aminosäurestickstoffbestimmung. [Modification of the Fuchs reaction. II. The serochemical reaction in leprosy with Kodama's improvement of the Folin method of estimating amino acid (nitrogen).] *La Lepro* **11** (1940) suppl. 87 (abstract).

The author has improved Kodama's modification of the method of Folin for the determination of amino acid, a simplification of the Fuchs reaction which measures the increase or decrease of amino-acid nitrogen arising from the decomposition of fibrin added to the tested serum. This



improved test has been employed in the diagnosis of leprosy. Of 51 cases (30 macular, 10 nodular, 7 neural, and 4 mixed), 35 proved to be of type I, 1 of type II, 15 of type VII. [Regarding this last type, called "transitional," see the author's report on this reaction in syphilis, *Japan Ztschr. f. Dermat. u. Urol.* 45 (1939) 31, abstract.] Of 8 nonleprosy cases, only 1 gave the immunity reaction, the other 7 being negative. The test was also negative in 3 cases of leprophobia, but in a girl who was the daughter of a leprosy patient it was positive. It is concluded that this reaction, which is simpler than that of Fuchs, can be employed in the diagnosis of leprosy.—[From abstract.]

- ICHIHATA, T. Praktische Bewertung unserer Serumreaktion der Lepra als Frühdiagnose. (Practical value of our leprosy serum reaction in early diagnosis.) *La Lepro* 11 (1940) suppl. 85-86 (abstract).

Antigens prepared from the organism, ("No. 920") isolated by Ichihara and Ohtawara from rat leprosy, have been used in a complement fixation reaction with and without reinforcement with kephalin. To establish its value in early diagnosis, it has been applied in Shorokuto, Korea, to the sera of children suspected of being infected but without symptoms. Of 34 cases, the plain antigen gave a positive reaction in one, and the other antigen reacted in two. One of these two children died without such symptoms, of a complicating disease; in the other, symptoms of the nodular form of the disease appeared within two years. The results of the several serum reactions made before and after that occurrence are given. It is held that the antigens made of this culture have a specificity for leprosy, and that in the case of a positive reaction before the advent of clinical symptoms an early diagnosis must be considered.—[From abstract.]

- ARANTES, S. Sobre a intro-derma-reacção de Montenegro na lepro. [On the Montenegro intradermal reaction in leprosy.] *Ann. paulist. de med. e cir.* 41 (1941) 458 (abstract).

On trying the reaction among lepers the author found it constantly negative in those without previous history of leishmaniasis, whereas in those who probably had had that disease over 20 years previously it was strongly positive. Leprosy does not, therefore, modify the result of the reaction in cured cases of leishmaniasis.—[From abstract.]

- KITANO, H., MAEDA, T., and FUKUDA, S. Schick test in leprosy. *Trans. 13th Meet., Japanese Lep. Assoc., 1939; La Lepro* 11 (1940) suppl. 70-71 (abstract).

It was expected that, because of their sources and the fact that leprous persons at home are more or less isolated from contact with the public, the inmates of Keiaien leprosarium would give a higher proportion of positive Schick reactions than normal persons. The opposite, however, proved to be the fact. Among 51 normals (staff members and their families), 12 (23 per cent) were found positive, but among 578 leprosy patients more than 16 years of age only 28 (4.8 per cent) were positive; of 41 aged 6-15 the proportion was higher, 19 per cent. There was no relation to type or sex. Before it can be said that this reaction is of relatively low frequency in leprosy generally, similar tests must be made in more northerly regions, since diphtheria is uncommon in the tropics.—[From abstract.]

- ARCHER, G. B. A brief note on the effect of vaccination for smallpox on leprosy. *Lep. in India* 12 (1940) 112.

The author reports an instance of the well-known phenomenon of development of lepra reactions following vaccination against smallpox among the 900 inmates of the Purulia Leper Home in India. The vaccinations were made because a patient who had been on leave developed the infection. In the fortnight before the vaccination 11 cases of lepra reaction had been observed, about the average number. In the fortnight after, 41 reactions of a more severe type than usual occurred, all in patients in whom the vaccination had taken successfully.—[From abstract in *Trop. Dis. Bull.* 38 (1941) 222.]

- ITIHARA, T. Studien über die Lepra. Ueber Filtrierbare Form bei Rattenlepra. [Studies on leprosy; on the filterable form in rat leprosy.] *Japanese J. Vet. Sci.* 1 (1939) 313-314 (abstract).

Studies of the filterability of the leprosy bacillus have given contradictory results. In the author's investigation he used white rats and rat leprosy material. An emulsion of nodules, 1:20 in saline, was first filtered through paper and then through Chamberland L<sub>2</sub> and L<sub>3</sub> filters; 1.0 cc. of filtrate was inoculated subcutaneously in the breast region of young white rats. Of those given the L<sub>2</sub> filtrate that did not die of intercurrent disease, 2 killed on the 12th and 31st days were negative; 2 killed after 304 and 313 days showed leprosy changes. Of the survivors of those given the L<sub>3</sub> material, one killed after 32 days showed no change; 2 killed after 77 and 123 days showed acid-fast bacilli; two killed on the 313th day showed leprosy changes. Three controls killed between the 92nd and 266th days all showed such changes. The bacilli found after about 70 days were typical, present only at the place of inoculation. It is concluded that this organism has an "ultravisible, filterable phase."—[From abstract.]

- HASHIMOTO, T. and KINEBUCHI, Z. Ueber die experimentelle Rattenlepra. (On experimental rat leprosy.) *Japan Ztschr. f. Dermat. u. Urol.* 49 (1941) 6 (abstract).

The authors fed water bacilli grown in glycerine bouillon to white rats for a long time. In one of them skin changes characteristic of rat leprosy developed.—[From abstract.]