

CURRENT LITERATURE

The current literature of leprosy is dealt with in this department as fully as possible. It is a function of the Contributing Editors (see inside of front cover) to provide abstracts of all articles published in their territories, but when necessary abstracts are taken from other sources.

THEUNISSEN, W. F. The governmental care of lepers in the Netherlands Indies. Meded. Dienst Volksgez. Nederlandsche-Indië 25 (1936) 3-5.

Though the government of the Netherlands Indies, accepting the view that leprosy was infectious, announced in 1898 that in principle it favored compulsory segregation, legal measures in that direction were never taken. In 1917 a regulation requiring the reporting of cases was promulgated, but it was ineffective and was withdrawn in 1922. In 1925 a basic segregation law was drafted but not adopted, and since then the stress on segregation has diminished (Bangkok and Manila conferences). More recently measures have been initiated along less asocial lines, and a research center has been established. The activities now being carried on for the care of lepers and the study of leprosy, with assistance of the government, are recapitulated. —H. W. W.

LAMPE, P. H. J. Motiveering en uitwoering van een onderzoek naar omstandigheden en verhoudingen in lepra-rijke en lepra-arme gebieden. [Motivation and plan for an investigation of regions with much and with but little leprosy.] Geneesk. Tijdschr. Nederlandsche-Indië 76 (1936) 2117-2123.

The development of leprosy is not governed exclusively by infection or super-infection; local conditions may also exercise an influence upon the generation of leprosy foci. An extensive investigation has been initiated in Java in six regions where leprosy is frequent, and in nine regions where it is rare, covering 150 haphazardly chosen families comprising about 900 individuals. Particular attention is being directed to the character of the soil, gardening, housing, dress and personal cleanliness, physical condition of the persons concerned, and their diet. The investigation of the diet, by daily control, is to be continued for fully a year, in order to obtain seasonal and annual averages. Undoubtedly coincidentals will be established, though it is hardly likely that more definite interpretation will be possible.—[From author's summary.]

SITANALA, J. B., SARDJITO, A. AND MOCHTAR, A. Nota over de bestrijding der lepra en Nederlandsche-Indië. [Antileprosy measures in Netherlands-India.] Meded. Dienst Volksgez. Nederlandsche-Indië 25 (1936) 13-32.

Formerly the only measure taken was the establishment of asylums, but lepers were not compelled to go to them. The unsatisfactory results of "compulsory segregation" elsewhere did not encourage emulation. The measures in vogue in British India since 1927 are now more or less similarly practiced in the Netherlands Indies. A general registration having been effected with the aid of government officials, the most severely affected regions are now being more systematically investigated. The procedure followed is presented briefly.—[From authors' summary.]

SITANALA, J. B. AND KODYAT, R. Lepra Untersuchungen auf Java. [Leprosy investigations in Java.] Arch. Dermat. u. Syphil. 174 (1936) 143-165.

The population dealt with—in Java, the Moluccas, etc.—is essentially Mohammedan and 93% illiterate. For the most part the people are farmers, very poor and usually undernourished, poorly housed and unhygienic. They believe that leprosy is usually transmitted by contact, but they also believe in hereditary infection and infection by the soil. In two districts with a population of about 1,200,000 the authors found 285 lepers out of 1,486 persons examined (19.2%). After the confidence of the people had been gained, 100 new cases presented themselves spontaneously in one year. The original cases were classified as neural 41%, cutaneous 52%, and mixed 7%; the differences between the two districts were not great. The maximum of infections had apparently occurred before the age of 25 years. The infecting person was most frequently the brother and sister; no case of conjugal infection was encountered.—[From abstract in *Ann. Dermat. et Syphil.* 7 (1936) 865.]

TUMBELAKA, J. F. Orienteerend onderzoek naar het voorkomen van lepra in het Regentschap Grisee (Oost-Java). [Leprosy in the Regency of Grisee, East Java.] Meded. Dienst Volksgez. Nederlandsche-Indië 25 (1936) 40-52.

In a preliminary investigation in the former Regency of Grisee it was found that the native village heads were able to furnish data sufficiently reliable to constitute a basis upon which further investigation could proceed. The latter comprised the reported cases and the other members of the same households, all being examined similarly (clinical examination, thick blood drops, nasal section and irritation serum). Most of the cases found were in more or less arid regions. The impression was gained that parents and adults played a more important part in the infection of the household than did young persons.—[From author's summary.]

FISCHER, I. A. Lepraverslag "Karolanden." [Leprosy in the Karo region.] Meded. Dienst Volksgez. Nederlandsche-Indië 25 (1936) 53-64.

More leprosy was found in Baroesdjahe and Soeka than in the other parts of the Karo region. The various factors that may influence its distribution were studied—density of population, humidity, food conditions, other health conditions and hygiene—and the idea is discussed that tuberculosis may cause people to become immune with regard to leprosy.—[From author's summary.]

ROBERT, L. AND MONTESTRUC, E. La lèpre à la Martinique. La campagne anti-lépreuse pendant l'année 1935. [Leprosy in Martinique. The campaign in 1935.] Rev. colon. Méd. Chir. (1936) 116.

The present situation is reviewed regarding leprosy in Martinique, where the disease is general and increasing, and it is held that rational measures should be taken. These, however, could not be the same as those applied in the other colonies because in Martinique a recognized leper has greater difficulty in making a living. Methods of dealing with patients on an out-patient basis are described, but the need of an asylum is remarked.—[From abstract in *Rev. Méd. et Hyg. trop.* 29 (1937) 59.]

GOTSCHALK, A. Contribution à l'étude de la lèpre dans les deux états baltiques: La Lettonie et l'Esthonie. [Leprosy in the Baltic States of Latvia and Estonia.] Thèse de Paris, 1936. Vigot Frères, Paris, 48 pp.

The introduction of leprosy into the Baltic states is usually ascribed to the Crusaders and other immigrants, but it may have come from the Scandinavian countries. The first leprosarium was at Riga, another was established at Reval in 1228 or 1238, and others elsewhere later. Actual statistics discussed pertain only to the present century. In this region (the prewar Russian province of Estonia) the total recorded cases increased from 193 in 1902 to 520 in 1929, but the number of new cases per year decreased steadily (110 in 1896-1901, 28 in 1916-1921). Females exceeded males, 1.15:1.

The distribution, origins, etc., of the leprosy foci in present-day Estonia are discussed, the figures based largely on Paldrock's data. [See *THE JOURNAL* 1 (1933) 201-204.] The leprosaria are Muuli near Tartu (Dorpat), 16 cases in 1931; Kuuda in the northwest, 69 cases in 1930; Tarvast in the southwest, 85 cases in 1930; and Audaku, in the west, 65 beds since 1904. The principal therapeutic measure in all of them is Paldrock's CO₂ snow-gold treatment. On the island of Saaremaa (Oesel) home isolation was found ineffective, and the disease increased until the Audako leprosarium was established in 1904, since which it has decreased to one-third the maximum figure.

In present-day Latvia the disease has decreased since 1899. In 1892, 38 new cases were recorded, while in 1932 the total was only 220, and in 1936 it was 199. There are two leprosaria, one at Riga and the other at Talsen; a third, at Wenden, was closed in 1925, and it is expected that the two now existing will be combined, because of the diminution in the number of cases. In 1936 there were only 168 inpatients, the other 31 having been returned to their homes. The method of dealing with cases is presented in detail. For treatment, antileprol (Bayer) has been used since 1935. —H. W. W.

FADDA, S. La lebbra nelle nostre colonie e nell' Etiopia. [Leprosy in the Italian colonies and Ethiopia.] *Gior. med. Mil.* 84 (1936) 206-213.

During the period 1922-1933 only 14 cases of leprosy were registered in Tripoli, principally among the nomad natives. The disease is also rare in Cyrenaica, where only 81 cases have been diagnosed. In Libya cases are carefully sought and isolated. In Eritrea a leprosy census in 1931 revealed 559 cases, but in one region in the residency of Barenta, from which 81 were reported, the author had found 225 twenty years before. In that colony there is no regulation of leprosy and no leprosarium. The 360 cases known in Somaliland are certainly less than exist. The disease is extensive along the Uebi-Seebeli River, but almost unknown in the northern regions. The government is taking active measures, and a colony was established in 1927 at Gelib, on the Gioba River. Of the 132 cases dealt with by the author there, 26 were macular, 24 nervous, 60 nodular, 11 mixed and 11 mutilated. The disease is very widespread in Ethiopia, especially in the Goggiam region. The army of occupation found tens of thousands of lepers living promiscuously among the healthy people and forming bands of beggars along the main roads. There were no regulations and no census. The author believes that the extreme frequency of the disease in this country is not due to climatic conditions, which are the same as in neighboring regions, but to the miserable condition of the people, their undernourishment, their promiscuity in their poor habitations, and to other diseases with which they are afflicted.—[From abstract in *Bull. Off. Internat. Hyg. Publ.* 28 (1936) 2390.]

COCHRANE, R. G. Leprosy in Ceylon. Report of Second Visit of Investiga-

tion, Carried out from November 2 to December 5 by Invitation of Ceylon Government. Colombo, Ceylon Government Press, 1936, 29 pp.

This is an official report on the re-examination of a situation which the author, in conjunction with the official leprosy officer, reported on in 1933 [see *THE JOURNAL* 3 (1935) 254]. The chief purposes of this second examination were to observe recent developments with a view to making further recommendations, and to make a further study of childhood leprosy, with special reference to a group of children with early leprosy that had been seen in 1933. The progress made in the work in general is commended highly, but details of this feature of the report and of the recommendations offered cannot readily be summarized. The principal features of the observations on childhood leprosy have recently been published in *THE JOURNAL* [5 (1937) 61-66].

—H. W. W.

ASAMI, S., SAKURAI, H., OHASI, K. AND IMURA, S. Epidemiologische Beobachtungen von Lepra in der Präfektur Hyôgo. [Epidemiological observations in Hyôgo Prefecture.] *La Lepro* 6 (1935) 73 (abstract section).

The authors report the results of an epidemiological investigation of a leprosy focus in three villages in the northern part of the province of Shiso, northwest of Kobe. Three-fourths of the inhabitants are peasants, the rest merchants. Of the 1,892 persons examined (out of a total of 2,130), 30 were found to be lepers. They came from 22 houses (out of a total of 405 homes). Data on the types of the disease and the sex, age, and social relations of the patients are given. Of the 30 lepers 23 were men and 7 women; 4 cases were macular, 3 nodular, 15 nervous, and 8 infiltrative. A part of the lepers were descendents of previously leprous families.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 41 (1937) 173.]

DE PATEO, D. AND PEREIRA, S. Da frequencia da lepra nos focos familiaes. [Frequency of leprosy in family foci.] *Brasil-med.* 50 (1061-1075 and 1080-1085; also *Rev. Brasileira Leprol.* 4 (1936) Special No., 241-261.

The authors conclude that leprosy is a familiar disease and emphasize the need of special examination and supervision of house contacts, which should be continued for a period of years, perhaps five. They believe that by maintaining the present method of prophylaxis (in São Paulo) the serious endemic will, in the not far distant future, be controlled to the point where measures can be reduced to the examination of contacts and sanitary education in the old family foci.—[From author's summary.]

SOETOMO, R. Enkele stellingen over de lepra. [Theses regarding leprosy.] *Geneesk. Tijdschr. Nederlandsche-Indië* 76 (1936) 2129-2132.

Leprosy is infectious and dangerous, the danger lying in our ignorance concerning the manner of its transmission. It is therefore necessary to maintain the procedure of segregation, but measures must be taken to overcome resistance to it. Even the apparently innocent neural cases may give rise to infection. Leprous children should be prevented from going to school. Carriers of bacilli, especially children, are the most likely transmitters of the disease. The principal sources of infection are not to be looked for in the cities, but in the rural districts.—[From author's summary.]

COCHRANE, R. G. The prevention of leprosy. *Indian Med. Jour.* 30 (1936) No. 7.

The subject of leprosy is dealt with from the viewpoint of preventive

medicine. The viewpoint is not essentially different from that indicated in the author's article in *THE JOURNAL* [2 (1934) 385-394], but it is elaborated with particular reference to the problem as it presents itself in India, where it is being realized that the principle long in vogue, that the disease could be controlled through outpatient clinics, has proved not altogether correct. —H. W. W.

HUIZENGA, L. S. Legislation and leprosy. *Leper. Quart.* 11 (1937) 3-16.

The author outlines the latest and what he considers the best legislation on leprosy, dividing the subject into four headings: (a) tracing the disease in the population, (b) control of cases not isolated in institutions, (c) control of isolated cases, and (d) control machinery to enforce legislation. Provisions pertinent to these topics are taken from regulations enforced in Surinam, Argentina, Japan, Straits Settlements, Canada and the Philippines, as well as recommendations from the report of the Leprosy Commission of the League of Nations. This article is an effort to focus attention on this important aspect of leprosy control which is lacking in China. —M. B. L.

HUIZENGA, L. S. Development of leprosy clinics in the control of leprosy. *American Jour. Publ. Health* 26 (1936) 883-887.

In a general discussion of the matter, with a strong historical tendency, the author points out that leprosy clinics can at present be established only where leprosy is prevalent, because the leper is usually not permitted to travel whereas the tuberculous may travel freely and clinics for them are usually built where that disease is not common and the climatic conditions are favorable. Nowadays forced segregation is giving way to home and clinic treatment, it is stated. Work in China is discussed at some length, and its inadequacy pointed out. —H. W. W.

WAYSON, N. E. (Studies at the Leprosy Investigation Station, Honolulu.) *Ann. Rep., Surg. Gen., U.S.P.H.S.*, 1935. Washington, 1935, pp. 25-27.

(1) Believing that the control of leprosy may be advanced by the development of better criteria for the diagnosis of early stages of the disease, observation of children of lepers was continued. [See *THE JOURNAL* 4 (1936) 177.] (2) The patients were tested intracutaneously with a formolized vaccine of rat leprosy material; 79% of the 24 quiescent or mild cases reacted positively, while 77% of the 62 cases regarded as active were negative. Other evidence suggestive of sensitivity was seen at the site of the inoculation when a patient developed lepra reaction several weeks later. (3) An attempt was made to desensitize 12 patients by subcutaneous injection of increasing doses of the antigen for three months. Acute reactions occurred in some cases after a significant time; in most of the group there was a complication in the subsequent development of necrosis and indolent though unimportant ulceration. (4) Among 481 patients who were clinically nonsyphilitic, 29.6% gave positive Wassermann or Kahn tests, the latter being the more frequent. In comparison, positive reactions were obtained in 32.6% of 834 patients attending a local venereal clinic, in 10.8% among 1,007 cases from a general dispensary (including many young individuals), and 4.2% among 526 women attending a prenatal clinic. Out of 526 individuals aged between 5 and 24 brought before a juvenile court, 5.4% were positive, while among 221 lepers of the same age group 32.1% were positive. (5) Several patients were treated with a heterologous (streptococcus) antigen to produce low-

grade fever and leucocytosis, for which it was found that intracutaneous injection is better than subcutaneous; the method seemed to be of value in the destruction of local lesions but its general effects were indefinite. (6) Continuation of treatment with colloidal and soluble bismuth preparations and sodium iodide in small doses gave results that warrant further study. (7) Clinical findings suggest an early involvement of the autonomic nervous system, and the results of alternate exposure of an extremity to baths at 5-10 and 40-50° C. seemed to offer some corroboration of this hypothesis. (8) Renewed efforts to cultivate the organisms of human and rat leprosy by newly published methods were unsuccessful. (9) Experiments with rat leprosy contributed additional evidence that the infection can be transmitted among white rats through the nose without direct contact with leprosy rats.

—H. W. W.

DUPUY. L'endémie lépreuse au cours de l'année 1934 dans les territoires soumis à l'action du Fonds Reine Élisabeth pour l'Assistance médicale aux Indigènes du Congo Belge (FORÉAMI). [Leprosy in 1934 in the districts dealt with by FOREAMI.] *Ann. Soc. Belge Méd. Trop.* 16 (1936) 177-187.

A total of 1,121 new cases were diagnosed in the area concerned, and 2,419 cases were treated. The separate districts are dealt with statistically in more or less detail. The rates vary from 0.20 to 0.50%. An apparent increase in the degree of endemicity (for the Bas-Congo from 0.17% in 1932 to 0.33% in 1934) is not considered actual. Excluding children, there are somewhat more female than male lepers, but considering the population the males are somewhat more affected. Of the 1,896 known lepers in Bas-Congo, 493 (26%) are living in "free segregation" in 14 centers, one of which has 191 cases but the others only from 3 to 43. The principles and problems of segregation as practiced are discussed, and the beneficial influence of treatment on efforts to control patients is emphasized. Hyrganol has replaced graumanyl. Methylene blue has been tried but it is not expected to replace chaulmoogra, though it may be used as an auxiliary.

—H. W. W.

[BIHAR AND ORISSA, INDIA] Triennial Report on the Working of the Hospitals and Dispensaries for the Years 1932, 1933 and 1934. *Jour. Trop. Med. & Hyg.* 40 (1937), *Colon. Med. Rep.*, p. 2.

The status of the six leper asylums and two colonies in Bihar and Orissa, where the disease is widespread, had not changed materially in the period dealt with, but the number of clinics had increased from 36 to 50, and the number of patients treated in them from 9,697 to 21,115. The post of leprosy expert and the survey party had been abolished for financial reasons. An experiment on special dietetic treatment was carried on for some time, but it was dropped because there was no appreciable good result. In discussing the general problem, it is said in part that it is unfortunate in some ways that there has been a tendency to treat leprosy apart from other diseases, and experience has shown that it is expensive and difficult to provide special clinics. It seems necessary to rely on the ordinary dispensary, but this can be done only if physicians are adequately trained in this disease; otherwise little difficulty is presented. Many patients have nothing objectionable in their appearance. Any objection on the score of infectivity may be met by treating the lepers at a different time or in a different place, but it should be done as part of the ordinary dispensary routine.

—H. W. W.

THIERFELDER, M. U. Enkele opmerkingen over het ontstaan der lepra. [Re-

marks on the origination of leprosy.] *Geneesk. Tijdschr. Nederlandsche-Indië* 76 (1936) 2133-2137.

On the basis of endemiological data the writer concludes that leprosy infection is not transmitted man to man, and assumes that there is an intermediary host, which may be the clothes louse. The leprosy bacillus in experimentally infected lice remains acid-fast for only a short time, though it remains color-fast with carbolthionin for a longer period. It is not impossible that the leprosy bacillus may be able to infect the human body only at a stage in which it is not acid-resistant. [For the discussion of this paper see *THE JOURNAL* 5 (1937) 105.]—[From author's summary.]

BOSMA, M. J. Onderzoekingen omtrent de aetiologie der lepra. [Investigations with reference to etiology.] *Geneesk. Tijdschr. Nederlandsche-Indië* 76 (1936) 2163-2174.

All micro-organisms cultivated from leprosy tissues are pleomorphic and optionally acid-resistant and pertain to the actinomyces or mycobacteria. Walker's findings are considered particularly significant. A description is given of such organisms found in the blood that are coccoid and ovoid little bodies, rodlets, diphtheroids and filaments, varying as to form and size. They have also been found in blood preparations from lepers from other regions, while the blood of non-lepers was always negative. [For the discussion of this report see *THE JOURNAL* 5 (1937) 211.]—[From author's summary.]

ALEIXO, A. Lepra e traumatismo. [Leprosy and trauma.] *Rev. Brasileira Leprol.* 4 (1936) 39-68; also *Folha med.* 17 (1936) 277-285.

In his resumé of this rather lengthy, profusely documented discussion, the author makes the following statements, among others, in support of a relationship between trauma and leprosy: Latent leprosy may become manifest after trauma of a part in which there is an indefinite lesion or in a nonbacillated area. Trauma of an actively bacillated lesion favors the migration of *M. leprae* and diffusion of the infection in the organism by way of the lymphatic and blood vessels, and may result in the liberation of the bacteria and consequently the dissemination of the disease. —M. B. L.

DE LOIZAGA, D. Bacilos de Hansen y otros acidoresistentes aislados de lesiones leprosas, coloreados por el metodo de Fontes. [Hansen's bacillus and other acid-fast organisms isolated from leprosy lesions, stained by the method of Fontes.] *Rev. Argentina Dermatosisif.* 20 (1936) 261-265.

The staining method of Fontes for acid-fast bacilli from leprosy lesions is described, and the following conclusions drawn: (a) evolutive forms are long bacilli containing three to six granulations, mostly with five; (b) spontaneously regressive forms are small bacilli with one or two granulations, mostly with 1 (coccoid forms); (c) forms benefited by treatment are bacilli smaller than those encountered in the evolutive forms, that is, containing two or four granulations. —M. B. L.

CARPANO, M. [New stain for the leprosy bacillus.] *Arch. italiano Anat. e Istol. Patol.* (1936) No. 1.

The author, of the laboratory of the Ministry of Agriculture in Cairo, gives the following new staining method for the leprosy bacillus. Reagents: (a) fuchsin 0.5 gm., alcohol rect. 10 cc.; mix and add crystal phenol 4 cc., water 100 cc.; filter and use after several days. (b) Sulphuric acid 20%. (c) Vesuvium, aqueous, 0.2 or 0.3%. (d) Fresh iodo-iodide solution. The

smears are fixed by heat, stained with (a) for one hour, decolorized with (b), alternating with some drops of water, counterstained with (c) and then washed in (d) for four or five minutes. Bacilli are stained an intensely dark violet, nuclear masses and other bacteria yellow. This method serves to differentiate the leprosy bacillus from other acid-fasts.—[From abstract in *Urol. & Cut. Rev.* 41 (1937) 225.]

HIROSE, T. Bacteriologische, serologische und tiere-experimentelle Untersuchungen an saurefesten Bazillen. [Bacteriological, serological and animal investigation of acid-fast bacilli.] *La Lepro* 6 (1935) 49 (supplement; summary in German).

From water, earth, grains, manure, human and animal smegma, and urine, the author has cultivated hundreds of strains of acid-fast micro-organisms. Some of them when inoculated into experimental animals remain for months and even multiply and cause lesions. It would be difficult to distinguish them from the bacillus of Stefansky, with which the author thinks them often associated, quite by chance.—[From abstract in *Bull. Inst. Pasteur* 34 (1936) 740.]

JORDAN, P. Uebertragung der Lepra des Menschen auf Zuchtratten mit der Möglichkeit zur Weiterimpfen und als fortschreitende Krankheit. [Transfer of human leprosy to rats, with possibility of transfer and progressive disease.] *Arch. Schiffs- u. Tropen-Hyg.* 40 (1936) 92-112.

This is a report of work done by the author and associates over a considerable period of years in attempting to establish infection with the human leprosy bacillus in white rats. Fresh nodular material was used, and young rats, 3 to 4 months old, mostly males. Out of a large number inoculated a very few have given positive results. One of them, inoculated in 1930, presented after some 15 months a nodule which later softened and healed. Passage to other animals, however, caused tumors after 5 to 10 months of incubation, and in 1935 the infection was in its seventh positive passage. The animals showed symptoms and died. Acid-fast bacilli were found regularly in the lungs, liver, kidneys, testes and heart's blood, and there were lesions histologically like those of human leprosy. The bacillus was never found in the nose. In another line of experiments acid-fast bacilli and reaction of the reticulo-endothelial tissues were found in the inoculated rats up to 12 months after the inoculation—most of them died after six to nine months—but in a single rat a tumor appeared after a year and one-half. Control inoculations into guinea-pigs showed that the material did not contain tubercle bacilli. The technique used is given in detail, and the different interpretations that can be made of the results are discussed.—[From abstract in *Bull. Inst. Pasteur* 34 (1936) 748.]

SHIGA, K. Studies concerning the lepra bacillus. II. Intracerebral infection with lepra bacilli. *Kitasato Arch. Exper. Med.* 13 (1936) 1-8.

In a previous study (1929) the author found that the leprosy bacillus could be cultivated artificially, but the colonies were microscopic. For five years he has engaged in animal infection experiments, for which he finds that mice are best. Bacilli live longer in those fed on vitamin-deficient diets, but removal of certain organs or the use of various chemicals failed to increase susceptibility. Only inoculation into the brain has given positive results.

Among more than one thousand mice so inoculated several showed large numbers of bacilli at autopsy. Of a lot of five mice subinoculated with infected brain material the bacilli could be recovered in only three, and the bacilli disappeared completely in the third or fourth passages. Autopsy of one of the second-passage mice revealed in the spleen granulations which contained acid-fast bacilli; this the author believes was due to metastasis of the human leprosy bacilli and not to an accidental infection with saprophytes.—[From abstracts.]

MOCHTAR, A. Entingsproeven met lepramateriaal. [Inoculation experiments with leprosy material.] Meded. Dienst Volksgez. Nederlandsche-Indië 25 (1936) 6-9.

Inoculation of leprosy material into *Semnopithecus maurus* resulted merely in local reactions in the shape of hard infiltrations. Efforts to increase the virulence of the bacilli by injecting them from animal to animal were unsuccessful, as were attempts to sensitize the animals by means of subcutaneous injections of tuberculin. Nevertheless, the results (short incubation period and prolonged local reaction) indicated that this animal is more sensitive to leprosy than are the *Macacus rhesus* varieties.—[From author's summary.]

NAKAMURA, K., KOBASHI, S. AND MATSUMOTO, J. Inokulations versuche der Menschenlepra auf Hausratten. [Inoculation of house rats with human leprosy.] Japanese Jour. Exper. Med. 13 (1935) 619-628.

It becomes easy to transfer human leprosy to young rats (*Mus norvegicus*) if one previously removes their thyroid and parathyroid glands. Of 34 animals inoculated 50% were infected, with the development of bacillus-rich leprosy granulation tissue in the skin, testes and lymph nodes. The most effective modes of inoculation are intratesticular and intraperitoneal.—[From abstract in *Arch. Schiffs u. Trop-Hyg.* 41 (1937) 175.]

WATANABE, Y. Experimental studies on animals concerning leprosy. Report IV. Allergy and inoculation of lepra materials. *Kitasato Arch. Exp. Med.* 12 (1935) 355.

On injecting rats with an emulsion of human leprosy nodules there are formed small, rapidly retrogressing local nodular lesions. After repeated injections, the local reactions and nodules are larger and disappear more slowly. A corresponding effect was also observed in apes. It is concluded that the first injection produced a certain allergy for the later injections.—[From abstract in *Arch. Schiffs- u. Trop- Hyg.* 41 (1937) 176.]

SAKURAI, H. AND YAMAMOTO, M. Beitrage zur Kenntnis von Mitsudascher Reaktion. [The Mitsuda reaction.] *La Lepro* 7 (1936) 59 (abstract supplement).

After giving figures for the results of the reaction in 62 cases tested, which are usual (80% negative in nodular cases and 85 and 100% positive in macular and neural cases), the authors report attempts to ascertain whether the results of the test may be modified by mixing the test material with sera of lepers before injecting it. They conclude that the skin itself plays the major role in the reaction.—[From author's abstract.]

CHATTERJI, K. R. Leprolin test and its uses. *Indian Med. Jour.* 30 (1936) No. 7.

The author reviews the introduction and use of the leprolin test, details a modification of Muir's schedule for grading the reaction, and deals with its significance, to some extent speculatively. It is stated that in young children who do not give positive reactions, histological sections show that the injected material is removed more promptly than in bacillus-positive nonreacting cases. Several questions are discussed without conclusions, including that of the supposed reduction of the reaction because of debility. The author states that he has found higher percentages of positive reactions among neighbor contacts than among family contacts or noncontacts. Treatment with leprolin is also discussed, and it is stated that the results of such treatment in 25 early neural cases seemed encouraging. —H. W. W.

SCHUJMAN, S. Histopathologia de la reaccion de Mitsuda: Estudio progresivo y comparativo de las reacciones tisulares que provoca en las diversas formas clinicas de lepra. [Histopathology of the Mitsuda reaction in the various forms of leprosy.] *Rev. Brasileira Leprol.* 4 (1936) 469-478.

The author discusses the prognostic value of the Mitsuda reaction, and its variation with age and with the different clinical forms of leprosy, and reports his studies (begun in Argentina and carried on in São Paulo) on the nature of the tissue reaction and its variations in the different clinical forms of the disease. The examinations were always made 2 and 8 days after the test injections. In tuberculoid leprosy, which always gives positive reactions, there is at first a very acute inflammatory reaction, replaced after one week by a granuloma very similar to that of the tuberculoid condition. In the cutaneous type the acute inflammatory process disappears quickly and is not followed by a chronic type of tissue reaction. In some cases of neural leprosy, especially in patients with achromic macules, the reaction clinically and histologically is similar to that in tuberculoid leprosy. The article is illustrated with photomicrographs.—[From author's summary, and abstract in *Brasil-med.* 50 (1936) 899.]

BIER, O. G. Ueber die Serologie der Lepra. IV. Einfluss der Temperatur auf die Reaktionsfähigkeit des Lepraserums mit Tuberculose- und Lues-Antigen. [Influence of temperature on the reaction capacity of leprosy sera with tuberculosis and syphilis antigens.] *Arch. Schiffs- u. Trop.-Hyg.* 39 (1935) 516-519.

There are two "reagins" in the serum of lepers, one having a group specificity, like the antituberculosis reagin, the other related to the specific reagin of syphilis, an antibody in respect to the lipoids that are released by the destruction of tissues.—[From abstract in *Bull. Inst. Past.* 34 (1936) 752.]

BIER, O. G. Ueber die serologie der lepra. V. Die phenolausflockung unter hypotonischen bedingungen als labilitatsausserung des lepraserums. [Serology. V. Phenol precipitation of leper serum.] *Arch. f. Schiffs- u. Trop. Hyg.* 40 (1936) 25-28.

The author has tested the diagnostic value in leprosy of Von Binni and De Blasio's hypotonic phenol precipitation method. He concludes that the tuberculosis test gave 70 percent of positive reactions in nodular and 30 percent in nerve leprosy, and the syphilitic test gave 33 percent positive in nodular and 30 percent in nerve cases of leprosy.—[From abstract in *Trop. Dis. Bull.* 33 (1936) 610.]

BESTA, B. AND MARIANI, G. Il valore pratico della reazione di Rubino per la

lebbra, studiato in Somalia. [Value of the Rubino reaction in leprosy, studied in Somaliland.] *Gior. Italiano Mal. Exot. Trop.* 9 (1936) 11-14.

The authors' results with the improved Rubino reaction confirm its facility and specificity, but indicate its inconstancy, only 52% of 46 cases having given positive reaction. It has no practical value for diagnosis or prognosis.—[From abstract in *Rev. Brasileira Leprol.* 4 (1936) 265.]

IMBERT, M. F. P. Rubino's reaction in leprosy. *Puerto Rico Jour. Pub. Health & Trop. Med.* 12 (1936) 257-266.

The author applied the latest form of the Rubino reaction (agglutino-sedimentation of formalinized sheeps' red blood cells), to 278 sera, 47 of them from lepers, 214 from other patients, and 17 from normal individuals. The lepers' sera gave 70% positive reactions, those from nodular cases giving 86%, mixed 70%, and neural leprosy 62%. There was no positive reaction with the nonleprosy sera. —[From author's summary.]

IKEI, S. Beitrage zur serochemischen Reaktion der Rattenlepra (MHH-Reaktion). [The MHH serochemical reaction in rat leprosy.] *La Lepro* 7 (1936) 1-3 (abstract section).

This long, detailed abstract of the author's original report ends with the statement that out of 56 rats artificially infected with rat leprosy, 44 (78.5%) gave positive MHH reactions, whereas in healthy, nonleprosy rats the reaction was always negative.—[From author's abstract.]

SAKAKIBARA, I. Forschung über die Serumreaktion der Lepra. Nachprüfung der Fällungsreaktion nach Kubokawa. [Serum reactions in leprosy. Kubokawa's precipitation reaction.] *La Lepro* 6 (1935) 41 (abstract section).

Kubokawa and other previous workers have used, as antigen for the precipitin reaction in leprosy, a mixture of an extract of human peripheral nerves and lecithin. The author's results with 157 cases were: 64 positive reactions (41%) in 157 cases, (48% of 109 nodular, 16% of 32 macular, and 22% of 32 nervous cases). This frequency of positive reactions is too low to make the reaction of practical value. Furthermore, of 27 luetic sera 27% were positive, though all from 14 cases of tuberculosis and 91 healthy people were negative.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 41 (1937) 176.]

SAKAKIBARA, I. Studien über die Serumreaktion der Lepra. Beziehungen zwischen der Fällungsreaktion durch Kephalinreagenz und der Veränderung der Bestandteile des Lepraserums. [Studies on serum reactions. Relation between kephalin-precipitin and the changes in the components of the sera.] *La Lepro* 7 (1936) 27 (abstract section).

The author had previously found that kephalin serves as a reagent for a specific reaction with leprosy sera. The present report deals with a study of details of the reaction. Diluting the serum weakens the reaction; treating it with animal charcoal removes the reagin; treating it with ether does not dissolve the reagin; on subjecting it to kataphoresis the reagin goes to the positive pole, being therefore electrically negative; dialysing it does not remove the reagin. Investigation of the proteins shows, among other things, that the reagin is contained in the globulin fraction, and that the part which is precipitated in the reaction is nearly all euglobulin.—[From author's abstract.]

SAKAKIBARA, I. Forschung über die Serumreaktion der Lepra. Die Komplementbindungsreaktion mit den Lipoiden als Antigen und kolloidalchemische

Reaktion des Lepraserums. [Serum reaction in leprosy. Complement fixation with lipids as antigens, and colloidal reaction.] *La Lepro* 7 (1936) 35 (abstract section).

Having demonstrated that kephalins, especially β -kephalin, give a specific precipitin reaction with leprosy sera, the author has investigated the complement-fixation and colloidal-chemical reactions. Of various substances tested, only kephalin was negative with syphilitic, tuberculous and healthy sera and positive with leprosy sera, as in the precipitin reaction. Cholesterin and lecithin added to the kephalin increased the degree of the reaction without producing nonspecificity unless too much was used.—[From author's abstract.]

SAKAKIBARA, I. Forschung über die Serumreaktion der Lepra. Die Forschung des Kephals als Antigen der Komplementbindungsreaktion des Lepraserums. [Serum reaction in leprosy. Kephalin as antigen in complement fixation.] *La Lepro* 7 (1936) 37 (abstract supplement).

Previously the author in a study of the precipitin reaction of leper's sera found that only β -kephalin acted as a specific antigen, and he has now investigated this matter with the complement fixation reaction. Heating a physiological saline solution of kephalin, or adding less than 1:20 of ether, does not affect its antigenicity, but oxidizing or reducing it does. Unlike α -kephalin, β -kephalin does not give specifically positive reactions. The degree of the specific reaction is higher with a mixture of β -kephalin and α -lecithin than with the former alone.—[From author's abstract.]

SAKAKIBARA, I. Ueber die Costasche Reaktion und die Senkungsgeschwindigkeit der Erythrozyten des Lepra-blutes. [The Costa reaction and erythrocyte sedimentation in lepers' blood.] *La Lepro* 7 (1936) 31 (abstract supplement).

The Costa reaction (Altschuler) and the erythrocyte sedimentation test (Westergreen) were applied to the bloods from 83 cases. In men with the nodular type of the disease the sedimentation averaged 47.3 mm. and with the neural type 25.3 mm.; in women the figures were 53.2 and 37.6, respectively. The rate was more rapid in the more advanced cases than in the lesser. The Costa reaction coincided with the sedimentation in 90%, and the degrees of both tended in general to parallel the leprosy symptoms.—[From author's abstract.]

PEREIRA, P. C. R. AND ANDERSON, H. H. Exame do conteúdo gastrico de leproso. [Examination of the gastric contents.] *Rev. Brasileira Leprol.* 4 (1936) 145-149. (Summary in English.)

During the course of an examination of 55 leprosy patients preliminary to treatment with "Chaulphosphate" orally and intravenously, we determined the gastric acidity after an alcohol test meal. All cases were mixed or "cuti-neural" leprosy and exhibited *M. leprae* in their peripheral tissues; 11 harbored acid-fast bacilli in their gastric secretions and in sedimented urine. Elimination of phenolsulphonphthalein was delayed in these individuals. Total hydrochloric acid excretion varied from 15° to 40° during the first hour after alcohol, and the free acid ranged from 7° to 15° during this period. Anacidity and achylia were noted in 10 of the 55 patients examined. Altered function of the spleen and liver has been reported by Bechelli and deranged lipid metabolism by Villela et al. Since our findings indicate impaired function of the

stomach and kidneys we may conclude that leprosy is generalized infection involving the viscera as well as peripheral tissues. —AUTHOR'S SUMMARY.

NAITO, K. The experimental studies on leprosy serotoxin. *La Lepro* 7 (1936) 21 (abstract section).

Using the method devised by Macht ("phytopharmacology") of demonstrating the presence of toxic substances in serum by the effect on living plant protoplasm, the author tested sera from 39 cases of leprosy of various stages and forms and found them highly toxic. The growth index increased when hydnocarpus oil was added, not because of a stimulating effect of the oil but apparently because of a detoxifying effect. An oil-water emulsion that had been clarified by Berkefeld filtration was found to have the same detoxifying effect. Applying this observation to clinical cases, 16 of them of various types were given injections of 20 cc. of the filtrate intravenously. High fever often resulted, which lasted a few hours or overnight, followed by severe sweating. In general these reactions appeared to parallel the intensity of the severity of the disease, and normal persons had none. This treatment gave remarkable effects in lepra reaction and with neuralgia and neuritis, most of these complaints disappearing after three to six injections—[From author's abstract.]

STEIN, A. A. Significance of constitution in the pathology of leprosy. *Urol. & Cut. Rev.* 40 (1936) 95-97.

The relationship of body constitution to the types and pathological changes in leprosy is discussed, based on a study of 103 adult lepers, mostly Russian, consisting of 65 men and 38 women. He classifies the constitutional types, according to Pigué's index, into hyposthenics, normosthenics and hypersthenics. The cases studied comprised 61 normosthenics (59%), 22 hyposthenics (21%), and 21 hypersthenics (19%). The ratio of the severe cutaneous form of leprosy to the neural form is 3:1 for the entire group, but in the hyposthenics the cutaneous form is most frequent, 86%, with 79 and 60% in the normosthenics and hypersthenics. He states that "spots," nodules, and "infiltrations" are most frequent in the hyposthenics, but the figures given show them to be most common among the normosthenics. Affection of the mucosa is slightly more common among the hyposthenics than in the other groups. The author concludes that the constitution affects the course of leprosy, leading to development of the cutaneous form in hyposthenics and the neural form in hypersthenics. Eye lesions occur in about the same rate in the hyper- and hyposthenic groups. —M. B. L.

DE CESARE, G. Sulla presenza dei bacilli di Hansen sulla superficie della cute dei lebbrosi. [Presence of bacilli in the superficial portion of the skin.] *Gior. Med. Milan* 83 (1935) 347.

Search for the leprosy bacilli in the cornified layer of the skin was always negative, though they could be found above the dermo-epidermal limit. In the present state of the study the author has not been able to demonstrate the possibility of the elimination of the organism, at least in its bacillary form, by means of the physiological desquamation of the skin.—[From abstract in *Bull. Inst. Pasteur* 34 (1936) 739.]

CERRUTI, H. Os bacillos de Hansen nos tecidos: Aspecto interessante na fixação pelo formol. [Hansen's bacillus in the tissues; fixation with formol.] *Rev. Brasileira Leprol.* 4 (1936) 441-446.

The author finds that the Zenker, Bouin, Orth-Müller and Helly fluids are bad fixatives when it is desired to study the bacilli in the tissues. Alcohol 70% or neutral 10% formol in physiologic saline are the best for maintaining the alcohol-acid resisting character of the bacilli. However, in vascular organs such as liver or spleen fixed in formol the great majority of the bacilli appear black or very dark brown, being enveloped by the formol precipitate. The greater the interval between the death of the patient and the fixation of the specimens, the greater the number of dark-appearing bacilli.—[From author's summary.]

KARASEFF, J. Aspect radiographique des manifestations ostéo-articulaires dans la lèpre. [Radiological changes of bones and joints.] Jour. Radiol. et Electrol. 20 (1936) 373-382.

The author found radiographic changes in the bones and joints in 95 percent of all cases of leprosy. The changes affect mainly the distal ends of the extremities. They are of a destructive nature. They appear under two different forms: (a) local osteoporosis, seen mainly in persons of the hyposthenic type; (b) osteo-articular destruction, seen only in pronounced cases of leprosy of the nervous system. These changes are met most frequently in the feet. The spine is never affected in leprosy. The bone changes become more pronounced with the general progress of the disease.—[Abstract from *British Med. Jour.* 2 (1936) Dec. 12.]

DES ESSARTS, J. Q. AND LEFROU, G. Évolution des léprides en lépromes. [Evolution of leprides to lepromata.] Bull. Soc. Path. exot. 29 (1936) 945-949.

The authors refer to a statement made by Darier in 1897 that the anesthetic macules are of the same nature as the true lepromata, different lesions showing a series of gradation. However, it has been generally observed that the macules seldom contain bacilli, and the authors, in biopsy material from pale, anesthetic patches of 175 cases, demonstrated bacilli in only 56 specimens. The histology of these lesions showed them to be related to the lepromatous granuloma, having the same cytological elements and the same fundamental structure. Two observations are considered particularly to demonstrate, both clinically and histologically, the transformation of leprides into lepromata. One of them, originally bacteriologically negative, became positive; the other remained negative. Details of the cases are given and discussed. The change is ascribed to a weakening of the organic resistance and especially a diminution of the local defenses of the skin, and also the intervention of the reactional process under the influence of treatment, as in the case of lepra reaction.

—H. W. W.

DES ESSARTS, J. W. AND LEFROU, G. L'histo-diagnostic dans le dépistage de la lèpre en milieu endémique. [Histological diagnosis in the recognition of leprosy in endemic areas.] Presse Méd. (1936) 1136-1138.

This article is a résumé of others of which abstracts have appeared in *THE JOURNAL*, including the foregoing one. It is held that the lesions of leprosy which cannot be diagnosed clinically with certainty, because of the absence of bacilli, present histological characters that, though not specific, are sufficiently characteristic and constant to permit confirming the diagnosis in collaboration with the clinician. It is pointed out that the histological work can be done at a distance; such work is being done by Bablet for the Service de Santé colonial

at the Laboratoire Central des Instituts coloniaux, at the Institut Pasteur in Paris.

—H. W. W.

GRIECO, V. Estudo clinico e histologico de um caso de nevrite hanseniana tuberculoide com caseificacao e ulceracao. [Clinical and histological study of a case of tuberculoid leprosy of the nerve.] *Rev. Brasileira Leprol.* 4 (1936) 151-201.

The author reports a detailed study of a case of nerve abscess, which is relatively rare. There was an anesthetic macule on the dorsum of the right foot and ulcers on the leg. The latter were in relation with the musculocutaneous nerve, which was greatly thickened at this point and continued indurated downward to the macule, where it divided into smaller branches. The nerve was extirpated from above the abscess to the macule, and the latter was removed. In the year since then the patient has presented no symptom of leprosy. The tissue removed was examined serially to show all the phases of the pathological process, from the beginning with proliferation of histiocytes and lymphocytes among the nerve fibers to the final phase of caseation. In the macule the nerve is subdivided into small branches that first show very slight changes that, however, go on to the "tuberculoid" character, but in the macule the condition is a common infiltration. The author proposes that the process of this general type in the nerve be called "tuberculoid Hansenian neuritis." When there is necrosis and ulceration, to that designation would be added "with caseation," or "tuberculoid leprosy of the nerve with caseation"; or if appropriate "with caseation and ulceration." [The article contains 35 illustrations, 30 of them photomicrographs.]—From author's summary.]

ROTBURG, A. Nevrite tuberculoide. [Tuberculoid leprosy of the nerve.] *Brasil med.* 50 (1936) 701 (abstract).

In a case with only a single erythematous, hypochromic macule, with an apparent nerve that was thickened and tense, the macule showed only simple infiltration around the blood vessels, sweat glands and hair follicles. The nerve, however, contained giant cells of the Langhans type, with a zone of beginning degeneration which appeared to be beginning caseation.—[From abstract.]

BORY, L. Pathologie comparée de la lèpre. [Comparative pathology of leprosy.] *Monde méd.* (1936) 863-875.

This article is a speculative discussion of the possible relationship between leprosy and certain conditions of as yet undetermined etiology. After reviewing briefly the questions of contagiousity, bacteriology and experimental inoculation of human leprosy, and considering rat leprosy at greater length, the author reviews briefly the "other animal leproses," including especially Johnes' disease (called "paraleprosy of cattle" by Frosch), Lobel's *lepra bubalorum*, and the so-called nodular subcutaneous tuberculosis of cattle. This leads up to a discussion of, on one hand, conditions in man (*lupus erythematosus* and *sarcoid*) which though possibly tuberculous cannot be proved experimentally to be of that nature, and on the other hand the condition in leprosy in which the lesions are lupoid but not tuberculous, and in which bacilli are difficult to find. He states that the bone changes in *sarcoid* that are demonstrable radiologically are quite comparable to those seen in leprosy. In summary, he asks whether the *sarcoids* and

certain other conditions may be larval forms of leprosy, and brings out the same question in connection with problems of animal pathology. —H. W. W.

RABELLO, JR. Données nouvelles pour l'interprétation de l'affection de Besnier-Boeck: rôle de la lèpre. [Interpretation of Besnier-Boeck disease: the rôle of leprosy.] *Ann. Dermat. et Syphil.* 7 (1936) 571-597.

After Boeck described his symptomatic triad (eruption of nodules, adenopathy and rhinitis), which absorbed the obscure "Mortimer's disease" and Besnier's "lupus pernio," a possible relationship with tuberculosis was recognized. Pautrier proposed extending the etiology to include syphilis. Schumann, who called it "benign lympho-granulomatosis," described a non-nodular, macular, "erythrodermic" form with lesions similar clinically to leprosy lesions, and Kissmeyer described a "lichenoid" form. Pautrier has pointed out that instead of a simple dermatosis we have a general disease, a reticulo-endotheliosis; but Darier, Gougerot, Nicolas and others are still faithful to the broader "sarcoid" doctrine of multiple etiology, including irritative and mechanical factors. From this point of view the Besnier-Boeck syndrome may accompany, in the tuberculous, the classical tuberculous lesions, in leprosy peripheral neuritis, etc. Its distinctive features of focal epithelioid granulomata ("sarcoids") of the skin, glands, lungs and bones, and nonreactivity to tuberculin, do not suffice to constitute an etiologically autonomous disease. In South America cutaneous tuberculosis is extraordinarily rare, making it difficult to attribute a tuberculous etiology to the cases of Boeck's syndrome seen there, and the Rabellos have investigated the possible rôle of leprosy in its etiology, with positive indications. In support of this view it is stated that leprosy may affect the reticulo-endothelial system in the skin, glands, bone marrow and spleen; it may present a sarcoid character in cutaneous, glandular and other lesions; in its tuberculous form it frequently causes such formations without other cellular types; it causes a specific rhinitis, indistinguishable from sarcoid rhinitis; in most cases there is adenopathy that is clinically and histologically analogous to that of sarcoid; it affects the lungs and bones in a manner indistinguishable radiologically from the effects of sarcoid; it is accompanied by skin anergy to tuberculin, as in Boeck's disease; like sarcoid it is cured by antileprol; and, finally, cultivation and inoculation experiments have given similar results in the two diseases. Boeck's disease may have more than one etiological factor, with tuberculosis first, leprosy second, and perhaps others.—[From abstract in *Urol. & Cut. Rev.* 40 (1936) 674.]

PARDO-CASTELLO, V. Leprosy associated with dermatitis atrophicans diffusa et progressiva. *Arch. Dermat. & Syphil.* 33 (1936) 12-20.

It is pointed out that diffuse atrophy of the skin, the best known example of which is acrodermatitis chronica atrophicans of Herxheimer, is a symptom complex which may be due to syphilis, tuberculosis, leprosy, and possibly other infectious diseases and endocrine disturbances. Although cutaneous atrophy is the final result of certain of the lesions of leprosy, diffuse atrophy—which in any case is the final stage of inflammation due to specific reaction of the tissues to the offending organism—is rarely seen in that disease. He describes, with several photographs, a case of two years standing in a Negro. The atrophy affected practically the whole cutaneous surface except the palms and soles; other cutaneous manifestations of leprosy were absent until, following intramuscular injections of chaulmoogra ethyl esters, an acute

attack of the disease occurred, with infiltrations in which bacilli, previously absent, were readily found; death resulted in six weeks. The differential diagnosis between this condition and acrodermatitis chronica atrophicans of Herxheimer is discussed, and comments are made on the relation between the two conditions. —H. W. W.

TOLENTINO, J. G. Acute generalized exfoliative dermatitis as a manifestation of lepra reaction, with report of two cases. *Month. Bull. Bu. Health (Manila)* 16 (1936) 337-343.

The author reports two cases of generalized exfoliative dermatitis, which he considers to be manifestations of lepra reaction because the clinical pictures are very similar to those of ordinary reaction except for the presence of generalized scaling. Treatment was that of exfoliative dermatitis, and resulted with recovery from the exfoliative manifestations but did not affect the basic disease, though bacilli were more numerous during the event than immediately afterwards. Present knowledge of lepra reaction, its nature, etiology, symptomatology and treatment, is discussed briefly. —M. B. L.

ROTBERG, A. Lesões de eczema em pelle anestésica; lepromas peri-foliculares. [Eczema lesions in anesthetic skin; perifollicular leproma.] *Brasil-med.* 50 (1936) 701 (abstract).

The author relates a case of mixed leprosy with extensive zones of anesthesia in which there was an acute eczema with vesicular elements, with incomplete symptomatology. There was total absence of pruritus or other subjective phenomena, which corroborates the physiopathologic studies that show that pruritus depends upon the pain sensibility. Histologically the lesions were typical of eczema, whose mechanism of formation is therefore not altered by hypotrophy of the skin; there were lepromatous elements around the hair follicles.—[From abstract.]

RIBEIRO, L. Un cas de lèpre decouvert par la dactyloscopie. [A case of leprosy discovered by dactyloscopy.] *Folha med.* 16 (1935) 489.

This report relates the case of a woman, finger-printed in 1919, whose prints in 1935 were found changed and who proved to have become leprosy. The author believes that leprosy can be diagnosed from the finger prints in the initial stage, and to study the matter this method of examination is being included in the technique of the Brazilian dispensaries and leprosaria. The author claims priority in the utilization of this method.—[From abstract in *Bull. Off. Internat. Hyg. Publ.* 28 (1936) 1155.]

CHAVARRIA, A. P. AND BARRERA, F. DE P. [Initial forms of leprosy: considerations on nervous leprosy.] *Arch. y Rev. Hosp. (Havana)* (1936) October.

Macules, achromic or hyperchromic, often described as early manifestations of leprosy, are very common in the maculo-nervous form of the disease. The hyperchromic lesions tend to have irregular borders, paling towards the center, and to become infiltrated and to show tropho-neurotic symptoms. The achromic areas are less frequent. Their borders are less distinct, there is an absence of congestion, less prominence of the surface and less infiltration, the parts being more atrophic. The initial lesions sometimes present the appearances of a folliculitis, which may persist for as long as a year. These lesions are unclassifiable because of the absence of hyperchromia or achromia, and

consequently diagnosis is extremely difficult. This form is rather rare, but the authors report several cases illustrative of it. Pemphigus is one of the most frequent lesions in nervous leprosy and is sometimes the only initial lesion; it is of great value in diagnosis.—[From abstract in *Urol. & Cut. Rev.* **41** (1937) 59.]

RIAD, M. Ocular leprosy. *Bull. Ophthal. Soc. Egypt* **28** (1935) 16.

Ocular complications in leprosy usually appear as a late manifestation of the disease. Four distinct types of keratitis can be identified: (1) leprotic pannus, (2) superficial punctate keratitis, (3) leproma of the cornea, (4) interstitial leprotic keratitis. The uveal tract is affected much less frequently in the nerve type than in the nodular and mixed forms of leprosy. No pathologic fundus changes were seen among 108 cases. The retina and choroid are not primarily affected.—[Abstract from *American Jour. Ophthal.* **19** (1936) 1047.]

KING, E. F. The eye in leprosy. *British Jour. Ophth.* **20** (1936) 561-569.

Of 14 cases of leprosy 10 showed eye involvement. The eye usually becomes involved late in the course of the disease. Thickening of the supra-ciliary ridge, loss of eyebrows, and diffuse infiltration of the lids, extending later through the tarsal plate, are characteristic early signs. While the 4th and 6th nerves seem to escape, the 7th and 3rd are prone to be affected. Lacrimal gland involvement and conjunctival anesthesia are usual. Punctate keratitis develops later. Gray spots or nodules frequently appear on the iris between the collarette and the ciliary zone. If retina and choroid are affected later, this is impossible of observation because of the scarring of the cornea.—[Abstract from *American Jour. Ophthal.* **20** (1937) 233-234.]

BARROS, J. M. Lepra ocular. Tratamento. [Treatment of ocular leprosy.] *Rev. Leprol. São Paulo* **3** (1935) 103-107.

The author finds that acute ocular attacks (lepra reaction) are benefited by desensitizing medication, especially autohemotherapy, in conjunction with systematic treatment and temporary suspension of the special treatment. Hyperplastic keratitis and lepromata of the episclero-conjunctival junction are treated by excision and cautery. Results with gold salts do not agree with the observations of those who have recommended them.—[From author's summary.]

AMENDOLA, F. Consideracoes sobre a tratamento das complicacoes oculares na lepre. [Treatment of ocular complications.] *Rev. Leprol. São Paulo* **3** (1935) 108-114.

The treatment of selected acute forms depends upon the general condition of the patient. Hyperplastic lesions of the cornea should be operated upon to stop their progress. Iridectomy is indicated in cases in which there are no notable complications in the iris. Cantorraphy gives satisfactory results in cases of paralysis of the orbicularis muscle.—[From author's summary.]

LEE, H. S. The first menses of lepra patients. *Japanese Jour. Dermat. & Urol.* **40** (1936), Nov. 20 (supplement, 168; abstract in English).

The author has investigated the time of occurrence of the first menses in leprosy patients in Korea. The average age was found to be 16 years and 10.81 ± 1.642 months, which is considerably later than that of healthy Korean women (-15 years). The average age is greater in women who were affected

before the first menses than in those who were affected after it. The first menses of leper patients occurred most frequently in the spring.—[From abstract.]

SAKURAI, H. On a few rare cases of leprosy. *La Lepro* 7 (1936) 19 (abstract section).

Cases reported include: Two young children, 3½ and 6 years of age; two women with macular lesions spreading from the loin onto the abdomen to the mons veneris; two women, 23 and 19 years of age, with macules of the labium majus pudendi, a location in which the author had never before seen any leprosy change; one similar case involving the perineum near the anus, spreading from the buttocks; one with a macule spreading to the axilla from the breast; and one showing a relation of leprosy lesions to tattoo marks. This was a man of 52, tattooed on the back, arms and thigh at the age of 18. The disease, now of 10 years duration, is of the nodular type, advanced. Lesions developed in the parts tattooed with mercuric sulphide; bacilli and pigment were found in the cells.—[From author's abstract.]

ROTBERG, A. Tres observações clinicas. [Three cases.] *Rev. Brasileira Leprol.* 4 (1936) 367-375.

Three cases are reported, one of perifollicular vesicular lesions in "anesthetic lepromas," one of an anesthetic lesion of the face with exaggerated infiltration, and one of tuberculoid neuritis with incipient caseation. —H. W. W.

DE SOUZA CAMPOS, N. Causa mortis entre os doentes de lepra. [Cause of death in leprosy.] *Rev. Brasileira Leprol.* 4 (1936) 69-79.

The causes of death in 919 cases in São Paulo are discussed in detail and (after comparing figures of other writers on leprosy as the cause of death, which vary from 22 to 75%), are summarized as follows:

Leprosy.....	455 cases, 49.6 percent
Disturbances of the respiratory apparatus.....	115 cases, 12.5 percent
Disturbances of the gastro-intestinal apparatus.....	87 cases, 9.4 percent
Disturbances of the cardio-vascular apparatus..	73 cases, 7.9 percent
Disturbances of the renal apparatus.....	61 cases, 6.6 percent
Septicemia and gangrene.....	36 cases, 3.9 percent
Malignant tumors.....	20 cases, 2.1 percent
Apoplexy.....	10 cases, 1.0 percent
Suicide.....	8 cases, 0.8 percent
Other causes.....	52 cases, 6.2 percent

The average time between onset of the disease and death in 1,470 cases was 10.5 years; for natives it was 11 years, for foreigners 10.25 years, and for the children of foreigners 9.66 years. The lesser resistance of the foreign element thus indicated is ascribed to the lack of active immunity and the predominance of the cutaneous and mixed forms. There was no significant difference between the sexes. Isolated patients die sooner than those that are not isolated: 10.4 and 10.9 years, respectively. The author wonders if treatment of advanced cases shortens life.—[In part from author's summary.]

MÜLLER, H. AND MERTODIDJOJO, S. Doodsoorzaken en viscerale afwijkingen bij lepralijders in Oost-Java. [Causes of death and visceral infection in East Java.] *Geneesk. Tijdschr. Nederlandsche-Indië.* 76 (1936) 2174-2184.

A report is given of 225 autopsies performed on patients of the leprosarium Semaröeng (Soerabaja, East Java). The causes of death were mostly tuberculosis and pneumonia; the distribution of the causes of death is almost the same as in the free population. The main localizations of leprosy in the viscera are found in the testicles, liver, spleen and larynx. The practical value of the laryngeal affection as a diagnostic in difficult cases is emphasized. Tuberculous structures found in the viscera are never caused by leprosy.

—AUTHOR'S SUMMARY.

MUIR, E. General and special treatment in leprosy. *Indian Med. Jour.* 30 (1936) No. 7.

In this article the importance of general treatment is heavily stressed, and certain fallacies in connection with treatment are pointed out. Leprosy bacilli are destroyed in the body, not by direct action of any known specific, but by the reaction of the tissues. Nodules and macules will often disappear, and neural symptoms diminish, as a result of intercurrent diseases or excessive special treatment, because of depression of the reactive powers of the tissues, but such improvement is only temporary and the final condition is worse than the first. The main object of treatment should be the improvement of general health. Other diseases should be treated, the diet should be carefully balanced and regulated, living conditions should be hygienic and the patient cheerful, and the patient should be put in training like an athlete. "When, and only when, all these have been secured, is special treatment with hydno-carpus oil and its preparations likely to be of use. . . . General methods should form 85 percent and the special methods 15 percent of the treatment."

—H. W. W.

SCHLOSSBERGER, H. Die Behandlung der Lepra und der Tuberkulose mit Chaulmoograöl. [Treatment of leprosy and tuberculosis with chaulmoogra oil.] *Zentralbl. Tuberk. Forsch* 42 (1935) 545-576.

This is a comprehensive review, with extensive references, on the source and chemistry of chaulmoogra oil and the vegetable fats closely related to it, of the therapeutic use and pharmacology of these oils and of preparations made from them, and of clinical experiences with chaulmoogra oil and its derivatives in leprosy, tuberculosis and other diseases. A study of the mechanism of their curative action leads to the conclusion that they apparently have a specific influence on the leprosy process. As to how far orientations may be obtained from the therapeutic success in leprosy for an effective chemotherapy of the tuberculous remains to be seen.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* 41 (1937) 176.]

COLE, H. I. Os oleos de chaulmoogra e sua preparação. [Chaulmoogra oils and their preparation.] *Rev. Brasileira Leprol.* 4 (1936) 3-7. (Summary in English.)

The therapeutic effect of chaulmoogra oils or their compounds is not due to the presence of an unknown glucoside or other compound but to the hydno-carpic and chaulmoogric radicals. This has been proven by several workers by in vitro and in vivo experiments. The purified oil is much to be preferred for injection purposes and contains all the therapeutically active principles of the oil. *H. wightiana* and *H. anthelmintica* oils are most used today. *C. Brasiliensis* oil needs further clinical trial. A method for purification of chaulmoogra oils is given. Such purified oils are nonirritating when used by injection.

—AUTHOR'S SUMMARY.

TALEC AND MONTGLOND. De l'influence de l'acidité de l'huile d'*Hydnocarpus wightiana* dans le traitement de la lèpre. [Influence of the acidity of *hydnocarpus* oil in treatment.] Ann. Méd. et Pharm. colon. 34 (1936) 460-471.

The authors state that the active principle of *H. wightiana* oil being unknown, it is advantageous to obtain the oil from the fresh, whole seeds by physical means rather than to risk modifying the fatty matter or eliminating the active principle. For the same reason, until the principle is obtained in pure state and substituted for the oil in therapy, it is best to use the pure oil which has not been submitted to any chemical treatment.

—H. W. W.

LOMHOLT, S. Antileprol treatment in dermatology. Acta Derm.-Venereol. 17 (1936) 389-401; also Hospitalst. (1936) 44.

The author reports favorably the results of treatment with antileprol in 1 case of cutaneous leprosy, 9 of Boeck's sarcoid, 6 of mycosis fungoides, 7 of lupus erythematosus, 1 of leucosis lymphaticus, and 1 of pemphigus vulgaris. The drug was given 1 cc. daily, increasing to 2 or 3 cc. when tolerated, and also intramuscularly or occasionally intravenously; the latter route gave rise at times to chest oppression and slight cough, but seemed preferable. Fine emulsions give less trouble and seem more effective than coarse emulsion or undiluted oil, after which marked eosinophilia was observed; one patient almost died from shock. From 12 to 100 injections were given. In the leper, the leprotic ulcers healed. Of the Boeck's sarcoid cases several showed considerable improvement, with regard to both the skin lesions and the general condition; permanent freedom from symptoms occurred in some cases, and in those that relapsed renewal of the treatment was followed by improvement. In mycosis fungoides it proved advantageous to combine the chaulmoogra with x-rays, and in lupus erythematosus with Finsen light treatment; the cases of the former improved markedly and one was cured permanently, those of the latter usually recurred. The results in skin tuberculosis were not encouraging.

—M. B. L.

HANSON, R. Report on therapeutic tests in certain forms of tuberculosis with an antituberculosis serum prepared by J. Reenstierna. Acta. Med. Scandinavica, supplement No. 73, 1936, 88 pp.

The author reports on the use of the serum referred to, from 1927 to 1934, reviewing first the literature of nonacid-fast forms of the tubercle bacillus, and describing Reenstierna's method of preparing the serum, for which he inoculates sheep with Gram-positive but nonacid-fast cocci obtained from human tubercle bacilli and from the blood of tuberculous patients, and also classical Koch bacilli. The cases treated comprise 11 of ocular tuberculosis, 21 of lupus, 52 of cervical glandular tuberculosis, and 41 of tuberculosis of the bones and joints. In lupus vulgaris there was rapid and obvious healing, and some of the glandular and osseous cases were affected favorably. In 7 cases of tuberculosis of the skin and erythema induratum there was no effect.

—H. W. W.

FISCHER, J. A. Tuberculinetherapie bij lepra. [Tuberculin therapy.] Geneesk. Tijdschr. Nederlandsche-Indië 76 (1936) 2138-2146.

For one and a half years a combined alepol-tuberculin treatment was given to lepers at Leoesimomo, the idea being that chaulmoogra oil would partic-

ularly attack the acid-fast stage of the bacillus while the tuberculin would cause the formation of antibodies that would tend to destroy the Much-positive but nonacid-fast organisms. The tuberculin was given in series, alepol injections being given at the same time. The results appear hopeful, although not all patients improved, and it is not known whether relapses will occur. The psychic condition of the patients improved considerably.—[From author's summary.]

DE GIORGIO, A. Il vaccino di Vaudremer nella lebbra. [Vaudremer's vaccine in leprosy.] *Boll. Sez. Reg. Soc. Italiano Dermat. Sifil.* **14** (1936) 51-54.

The vaccine prepared by Vaudremer was tried in the treatment of three cases of mixed leprosy. The injections were well tolerated, but the results were absolutely negative.—[From abstract in *Rev. Brasileira Leprol.* **4** (1936) 521.]

MERCKEN, G. Essai de traitement de la lèpre par injections intraveineuses de bleu de méthylène. [Treatment with methylene blue.] *Ann. Soc. belge Méd. trop.* **16** (1936) 493-501.

In all of the 34 cases treated febrile reactions occurred, during which the blood was nearly always positive for malaria. A curious and frequent feature of the staining of the macule was an appearance as if too much dye had been taken up, resulting in a streaming downward into the healthy skin, as if by gravity. Old macules stained only peripherally, new ones throughout. Un-suspected lesions were sometimes demonstrated. Since only leprosy lesions stain, the phenomenon would be useful in diagnosis. The treatment was beneficial for painful conditions, but no evidence was seen of any effect whatever on the evolution of the disease. In all cases the general condition was manifestly improved, but in no case did the improvement last for than more three months. —H. W. W.

GONZALES URUEÑA, J. Le traitement de la lèpre par le bleu de méthylène. [Methylene blue treatment.] *Delib. IX Cong. Internat. Dermatol.*, 1936, vol. 2 (reprint).

Encouraged by the reports of Montel, the author applied methylene blue to 11 cases selected out of the 439 registered at the leprosy dispensary in Mexico City; 6 were nodular, 4 macular and 1 mixed. Bacilli did not disappear, but they became granular and poorly staining. However, it is concluded that the method cannot be recommended. It sometimes causes notable improvement while it is being used, but afterward the lesions reappear in aggravated form; even during treatment lesions may progress and new ones appear. Disturbances and accidents were observed, including the production of a toxic cataract and the lighting up of latent tuberculosis. —H. W. W.

DE CARVALHO, J. C. Ensaios de tratamento da lepra. Crystal violeta e auto-hemoterapia. [Crystal violet and auto-hemotherapy in treatment.] *Rev. Leprol. São Paulo* **3** (1935) 174-177.

Of the 15 patients treated 5 became worse; the other 10 improved subjectively and objectively. Auto-hemotherapy should be tried in the treatment of eruptive attacks of leprosy.—[From author's summary.]

HIGUTI, K. Ueber die Resultate der Gurgolbehandlung bei Lepra. [Gurgol treatment.] *La Lepro* **7** (1936) 17 (abstract supplement).

The author used gurgol (aurothiophenolcarbonsaures natrium, Takeda),

giving 1 cc. of a 1.5% solution intravenously, twice a week, the number of doses per case varying from 8 to 21, in 16 non-nodular cases (8 macular, 7 nervous and 1 with leprous pemphigus) Definite improvement occurred in 11 (70%) of them. The macular cases responded especially well, with fading of the lesions and lessening of sensory disturbances after from 5 to 11 injections. Leprous tumors, infiltrations, edema, pemphigus and neuralgia were also bettered, but not muscular atrophy. The only complication observed was albuminuria after the tenth injection in one case.—[From author's abstract.]

VAN BREUSEGHEM, R. Essai d'un traitement de la lèpre par l'hyposulfite de soude. Resultat négatif. [Treatment with sodium hyposulphite; negative result.] Ann. Soc. belge Méd. trop. 16 (1936) 285-287.

The author in the Belgian Congo has treated four cases with sodium hyposulphite given intravenously. This drug had no curative effect, or even ability to modify the evolution of the disease. —H. W. W.

BAPTISTA, L. Contribuição ao tratamento das dores em doentes de lepra. Tratamento pela histidina. [Treatment of pain with histidine.] Rev. Brasileira Leprol. 4 (1936) 223-232.

This report deals with the treatment of severe pain with histidine, which Senormand and others have used in pain syndromes, particularly of sympathetic origin. The author tried it after using many other remedies, including tartar emetic, gypsocol, biostenyl, calcium chloride, benzoate of sodium, methylene blue, atropine, mercurochrome, without success. It was given hypodermically every day; no untoward effects were observed. In four cases it gave optimum results, permanent relief after three daily injections. In one of the seven cases treated the effect was prompt but the pains returned, though with less intensity, and they disappeared with three more injections. In two cases the results were negative.—[In part from author's summary.]

ROTBURG, A. Tratamento da reacção leprotica pelo carvão por via endovenosa. [Treatment of lepra reaction by charcoal administered intravenously.] Rev. Brasileira Leprol. 4 (1936) Spec. No., 163-173.

The author has treated 29 cases of lepra reaction by intravenous injection of charcoal, accordingly to St. Jacques' method. In the first series of 21 cases he used a 2% suspension in saline of a vegetable charcoal of 50-micron particles, giving 5 cc. on alternate days. There was no change in 4 cases, 2 were worse and 15 were improved more or less markedly, but this result was not permanent and in almost all cases relapse occurred. The patients reacted strongly to the injections, with rise of temperature and headache, sometimes followed by torpor. In the second series of 8 cases, a 5-micron animal charcoal was used, in a 2% suspension in a 10% dextrose solution, which makes the injections easier. Tolerance was good but the results were not much better. There was no change in 4 cases while 4 improved, with 2 relapses. The sedimentation index usually improved, but only temporarily. It is concluded that this method is useless, at least in the form and with the doses used, and it involves the possibility of shock produced by vegetable charcoal with large particles in cases of severe and resistant algias.—[From author's summary.]

ANDERSON, H. H. The possibilities of chemoprophylaxis in leprosy. Folha med. (1936) July 25; reprinted in part in Jour. Trop. Med. & Hyg. 40 (1937) 50-52.

After reviewing certain concepts of the etiology and transmission of leprosy [the Philippine Leprosy Commission of 1935 being credited with certain views that actually it did not adopt] the author discusses various possibilities of prophylactic measures through chemical means. One is based upon an evident belief that the nasal mucosa is the probable portal of entry of the bacillus. It is related that experiments have shown that ferric chloride given intravenously decreases the virulence of experimental tuberculosis, the idea being that this and other substances mentioned should be experimented with in rat leprosy, and might be used intranasally in infants born in leprous households. Another possible application of chemicals "found to be active against *M. leprae* in vitro" is the prevention of leprous eye complications. The author states that he has been able to render the peripheral tissues of man with "cuti-neural" leprosy free of acid-fast organisms by applying heat at 40° to 41.5° C. for fifty hours in sessions of four to five hours each. —H. W. W.

WATANABE, Y. Experimental studies on animals concerning leprosy. V. Experiments of inheritance of predisposition for leprosy of rat. *Kitasato Arch. Exper. Med.* 13 (1936) 66-69.

The young of leprous rats show neither resistance to experimental infection nor an increased susceptibility. Natural infection is impossible among white rats, though they can be infected experimentally, from which it is concluded that they are more resistant than domestic rats.—[From abstract in *Bull. Inst. Pasteur* 34 (1936) 746.]

BOOK NOTICE

MAXWELL, JAMES L. *Leprosy: A Practical Textbook for Use in China.* Shanghai, The Chinese Medical Association, 1937, 109 pp., illustrated. Price \$2.00 Mex. or \$1.00 gold.

The essentials of leprosy are so clearly and adroitly condensed as to make acquisition of a general knowledge of the disease an easy affair. The photographs, few but illustratively chosen, will help the reader to visualize its most striking clinical and histopathological features.

Concerning itself as it does only with the practical aspects of leprosy, this booklet will serve to dispel some of our ignorance of the disease (especially in China) which has been repeatedly revealed in public and private clinics. The first half takes up the clinical considerations while the last half deals with treatment and prognosis. A public health touch is given by a chapter on "Village clinics and leper settlements," the contents of which ought to be closely scanned by those entrusted with organizing and administrative responsibilities.

Though the author's preface disarms criticism, yet one would have wished that the chapters on "Symptoms" and "Diagnosis" could be more extensively treated. It seems also desirable to know a little more of the experiences of workers in the leper colonies of the Philippines and of India especially with regard to prognosis and end-results of treatment.

As an introduction to this subject, the author is to be congratulated in bringing out such a successful practical guide. Clinicians as well as medical students should find it extremely helpful on occasions when larger volumes are not available or serve to confuse the uninitiated.—[From the *Chinese Med. Jour.* 51 (1937) 276.]