

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.

FLANDIN, C. AND RAGU, J. Origine, mode de contagion, durée d'incubation de la lèpre dans 95 cas dont 6 contractés dans la région parisienne. Traitement par les injections intraveineuses du complexe chaulmoogra-cholestérol. [Leprosy, its source, mode of infection and length of incubation period; treatment by intravenous injection of chaulmoogra and cholesterol.] Bull. Acad. Méd. 117 (1937) 337-343; also *Siècle Méd.* 10 (1937) April.

The authors have studied a total of 95 leprosy patients in Paris, 26 in the Hôpital St-Louis and 69 more in and near the city. There were 22 colored, 9 mixed and 64 (over two-thirds) white individuals. Of the last, 17 had been born in, and 41 had visited, French colonies where leprosy exists. The remaining 6, however, had never left France; these cases are discussed in detail. Two of them had lived in close contact with Chinese and Annamites in Paris, the infection of three others is ascribed to cohabiting with an infective leper woman, and the fourth was a young girl who had married a white leper, signs of the disease appearing six to eight months later. In the whole group the "incubation period" varied from eight months to 25 years. Stress is laid on sexual contact in connection with infection. The question arises whether the long-held idea that leprosy is no longer contracted in Paris is wrong, or whether it has again become transmissible there. The authors are inclined to the latter alternative, but believe that under ordinary social conditions the danger from it is too slight to necessitate the adoption of segregation and compulsory notification. In 1934 there were only 4 cases in the hospital; consideration in dealing with the patients and the success of the treatment used has brought the number up to 26 and has led to knowledge of the other cases, lepers in Paris seemingly being in communication with each other. The treatment employed is the chaulmoogra-cholesterol preparation, given intravenously, the results with which have previously been reported [THE JOURNAL 5 (1937) 549].—[From abstracts.]

[ICELAND] (Public health in Iceland; annual report for 1934.)

This report contains 152 closely printed pages, and a 5-page summary in English for readers unfamiliar with Icelandic. The total population of Iceland is 114,000, nearly one-third being concentrated in Reykjavik. Leprosy continues to decline; in 1925 there were 50 lepers alive and in 1934 only 31, but it should be noted that in this year the diagnosis was made for the first time in three cases.—[From notation in *The Lancet*, Dec. 5, 1936.]

DE SOUZA-ARAÚJO, H. C. The origin of leprosy in Brazil and its present situation. *Lep. Rev.* 8 (1937) 12-16.

The origin of leprosy in Brazil is traced to the European colonists and African slaves. Portuguese first introduced it, after which, between 1555 and 1711, came expeditions from France, where large foci of leprosy existed in the 14th and 15th centuries. Many Dutch lived in Brazil between 1624 and 1654, and leprosy was prevalent in Holland in the 15th and 16th centuries. The main source, however, was the African slaves, who were first brought into Brazil somewhere between 1540 and 1580. The principal ports of importation were Rio de Janeiro, Bahia and Recife, where the disease progressed rapidly. Three great foci now exist, one in the north, from Maranhao to Acre Territory, one in the central region, Minas Geraes, and one in the south, São Paulo, but lepers are found in every state. The first control measure was taken in 1741, when the poor lepers of Rio de Janeiro were isolated in huts in S. Christovam at Rio. The first antileprosy legislation was enacted in 1744; this ordinance considered leprosy as a contagious disease, regulated the treatment and the isolation of patients in asylums, and advised rigorous selection of African immigrants. Compulsory segregation was introduced in 1766. As the result of a paper read before the National Academy of Medicine in 1883 control measures were relaxed and nothing was done till 1920; in 1921 the Federal Bureau of Leprosy Control came into existence. [The statistics on leprosy in Brazil and a list of leprosy institutions there are given in *THE JOURNAL* 5 (1937) p. 535.]—[From abstract in *Lep. India* 9 (1937) 66.]

BALIÑA, P. L. Consideraciones sobre el problema de la lepra en la Argentina. [The leprosy problem in Argentina.] *Rev. Brasileira Leprol.* 4 (1936) 489-502.

In this lecture Balíña describes the activities of the Argentine leprologists from 1906 to date in (a) intensifying instruction in leprosy in the medical schools, (b) placing special responsibility on the dermatologists for keeping the sanitary authorities cognizant of the leprosy conditions, (c) influencing the Government authorities in favor of an organized national antileprosy campaign, and (d) educating the people concerning the disease and their responsibility to cooperate with the authorities with reference to its control. The present official figure for known cases is about 3,000 but the real number is probably between 7,000 and 8,000, in a population of 12 million (a little over 0.5 per mille). Of the known cases 88% live in the basins of the great rivers, 11% in the far inland regions to the west of the rivers, and 1% in the hilly districts towards the Andes. About 50% of the cases examined in recent years have been bacteriologically negative; 80% were from the poorer classes, 20% from the well-to-do. All the ordinary clinical types of leprosy are found, including the tuberculoid. Nerve abscess is very rare and pemphigous forms extremely so.—[From abstract in *Lep. Rev.* 8 (1937) 99.]

FERNANDEZ, J. M. M. AND VACCARO, A. J. Evolucion y estado actual del problema de la lepra en Rosario. [Evolution and present state of the leprosy problem in Rosario.] *Rev. Argentina Dermatofilol.* 21 (1937) 81-89.

The authors believe that the number of lepers in Rosario is increasing. In 1916 there were 107 known cases, and 435 in 1936, of which 247 (61%) were autochthonous in Rosario. Nearly two-thirds (62%) of them were natives of Argentina; 20% were Italian and 8% Spanish. The sex ratio, male to

female, was 1.3:1. Data on age and occupation are given. There were 325 cutaneous-type and mixed cases and 110 neural and tuberculoid ones. There are 226 under treatment, 185 of which are heavily bacillated; of the latter, only 44 are hospitalized in the Hospital Carrasco, the only institution in which such patients can be kept. Contacts are examined every 3 or 6 months for a period of not less than 5 years. The authors discuss the need of regional asylum-colonies for advanced cases, suburban hospitals for the moderate ones and dispensaries for the incipients and negatives. A single leprosarium is considered undesirable; cases should be grouped according to their infectivity and advancement.

—M. B. L.

[ECUADOR] [Leprosy in Ecuador.] Bol. Of. San. Panamericana (1936) Feb.

There is only one leper hospital for the whole of the republic, the Verde Cruz hospital in Quito, the capital, and there is not sufficient accommodation in it for all the patients. The question is under consideration as to the economic possibilities of constructing a leprosy center for the sea-coast districts, the best place for which would be in the Taruma zone of the Province of El Oro. In other parts of that region, such as Capiro, Piñas and other towns, there has been a considerable decrease in the number of cases. From June, 1934, to May, 1935, there were only seven cases in Guayaquil, and twenty in other towns of the coast.—[From note in *Lep. Rev.* 7 (1936) 145.]

DE BALMANN, A. Lèpre et prostitution à Tahiti et aux Iles-sous-le-Vent. [Leprosy and prostitution in Tahiti.] Marseille méd. 74 (1937) Feb. 15.

The author, in the course of a visit of some months in the Society Islands, visited the Orofara leprosarium and gives his impressions of it and facts concerning its organization.—[From abstract in *Ann. Dermat. et Syphil.* 8 (1937) 480.]

[QUEENSLAND] Annual Report on the Health and Medical Services of the State of Queensland, 1936-37. Brisbane.

For several years the Queensland representative at the meetings of the Federal Health Council has stressed the desirability of investigating more fully the incidence of leprosy in the more remote areas of the State. The situation was felt to be more urgent after inquiries made in the Northern Territory and in the north-western portions of the State of Western Australia had resulted in considerable numbers of lepers being detected there. In Queensland various small foci of leprosy have been under observation for some years, and in one of these the disease has extended. Recently the sum of £500 was allocated for such an investigation, to be spread over a period of three years. Preliminary observations have been started in a native aboriginal settlement that, because it represents practically a closed experiment, should disclose material of considerable interest from the points of view of epidemiology. As regards patients isolated in the Pell Island Lazaret, the situation remains practically stationary, with 74 patients: White inmates, male 22, female, 6, total 28; Colored inmates, male 31, female, 15, total 46.

—H. W. W.

STORM, W. H. Leper survey of the Arabian Peninsula. *Lep. Rev.* 8 (1937) 5-11.

In a recent tour in Arabia, Storm investigated the prevalent skin diseases

and in doing so ascertained roughly the incidence of leprosy and the forms presented there. He examined suspicious cases, bacteriologically and otherwise, and traced their contacts. The disease exists in all of the eleven districts into which he divides the peninsula, but in some of them (Nejd, Asir, Bilod Mahara and Kuwait) cases are rare and in several others so few as to be unimportant. Only in the southern end of the peninsula—in Yemen, Aden and Makalla-Hadramout—is there a concrete leprosy problem. It is worst in Yemen, where some families were reported to have 6 or 7 cases each; Aden is so closely related that the problem is a single one. There is an unsatisfactory, inadequate leprosarium at Sheikh Othman, on the border between these two regions. A definite, limited focus exists in Makalla and Hadramaut; there is no leprosarium, but there exists a system of isolation by which lepers are made to live in small huts outside the towns (Wadi Doan and Wadi Esar) and are not allowed to enter them except very occasionally. Food is supplied by members of the lepers' own families. Dhufar has possibly the beginning of a third focus. Nearly all rulers and government officials exhibit the profoundest ignorance of leprosy. The author believes that the methods of isolation at Wadi Doan should be studied from a sociological point of view and also with regard to Arab customs and nature. Since leprosy is essentially focal in its distribution, attention in antileprosy campaigns should be concentrated on the more serious focal points.

—H. W. W.

[LEAGUE OF NATIONS] Health organization, League of Nations. Report to the Council on the Work of the Twenty-Fifth Session of the Health Committee. Geneva, 1937, pp. 29.

Previous work of the Leprosy Commission is reviewed, it being stated that the commission is being reconstituted to include representatives of the various leprosy centers and institutions and the principal organizations working against this disease. The activities of several important organizations has given rise to a new situation which will necessitate a definition of the essentials of future action of the Commission. Experimental researches in contemplation cover: experimental reproduction of the disease, culture of the bacillus, value and use of the skin test (Mitsuda, Bargehr, etc.), existence of an inframicrobe and study of chaulmoogra oil. The requirements of the present situation as regards epidemiology, prevention and practice are mentioned. It is proposed that the Commission should participate in the international conference to be held in Cairo in 1938.

—H. W. W.

LOWE, J. The epidemiology of leprosy. *Indian Med. Gaz.* 72 (1937) 160-166.

This article is a general account of the subject. In a brief historical survey the author finds no satisfactory explanation of the decline of leprosy in Europe. Transmission is through direct contact with infectious cases, probably due to insects. A map shows the rough general distribution of the disease in hot damp climates of the world, and one of India based on recent surveys shows a very similar relationship to climate. The author is in agreement with others regarding age and sex distribution, the excess in males being difficult to explain. The predisposing effects of poor diet and social conditions are stressed. The most important point in control is the prevention of contact of children with infectious cases.—[From abstract in *Trop. Dis. Bull.* 34 (1937) 600.]

CLOUSTON, T. M. Age groups of leper patients at Nauru. *Lep. Rev.* **8** (1937) 23-29.

In this note 284 isolated, bacteriologically positive cases, and 193 early negative ones treated as out-patients, are discussed. In recent years the numbers of new positive cases have decreased greatly, though those of negative early ones not to the same extent. This change is attributed largely to early segregation of the infective cases, made possible by frequent examinations of all of the small population. The fact that fewer cases now reach the infectious stage is held to point strongly to the advisability of early and continued treatment. Only four originally noninfectious cases have gone on to the nodular stage under treatment, and in the last six years five cases have become of the infectious cutaneous type but not nodular. Further, only 17 (6%) of infectious cases that were admitted early in the disease have advanced to the nodular stage under treatment. On the other hand 32 cases (11%) once nodular have been released after becoming bacteriologically negative, and 12 more have lost their nodules. The sex ratio of segregated cases is 1.2 males to 1.0 females, and among clinic cases 1.4:1.0. The relapse (readmission) rate has been only 8.8%; 8 of 9 recent ones gave negative leprolin tests, indicating lowered resistance. In nerve cases in the clinic the relapse rate is very low. In 55% of the segregated cases infection could have occurred before the age of 15 years, and about 45% were definitely infected before that age. At least 20% were over 25 when the first signs appeared, and 15% were over that age when first exposed to infection. At present there are only 57 segregated and 102 clinic cases, totalling 159 under treatment, approximately 10% of the population. In 1924 the cases represented almost 30%, and in 1933 about 14%.—[From abstract in *Trop. Dis. Bull.* **34** (1937) 601.]

PARREIRAS, D. Anotações acerca do isolamento nosocomial na lepra. A Colonia do Igua (Estada do Rio). [Notes on the nosocomial isolation in leprosy. The Leprosario de Igua.] *Arq. Hig.* **7** (1937) 99-108.

The author, who is building the Leprosario de Igua, discusses problems of the nosocomial isolation of leprosy, starting with the selection of the site, and laying out of the grounds. The buildings are to be pavilions of the Carville type. The institution is divided into three areas, one for the resident staff, one for the patients, and an intermediate zone. A complete administrative organization is laid out, with an internal police by the patients themselves. Some aspects of the control of contagion within the hospital is discussed, and measures are proposed for preventing the escape of patients and for early segregation.—[From author's summary.]

ETCHEVARNE, C. L. La lucha contra la lepra. [The fight against leprosy.] *Semana méd.* **1** (1936) 532-536.

The author discusses the obstacles which hinder the fight against leprosy and the necessity of creating institutions for its study and for isolation of the sick, which he feels should not be called leprosaria or asylums. He then considers the erroneous apprehension concerning the contagiousness of the disease, and the causes which, in his judgement, led to erroneous statistical data. He believes it useful to send physicians as fellows to the large centers for the study of leprosy.—[From abstract in *Rev. Argentina Dermatosisif.* **20** (1936) 730.]

VAN BREUSEGHEM, R. Lèpre et sangsues. Leprosy and leeches. Ann. Soc. belge Méd. trop. 17 (1937) No. 2.

The author's attention was drawn to the frequency with which leeches (*Hirudo pawensis* Sciac.) attack man in the Pawa region, an important center of endemic leprosy. He notes that in their natural habitat the leeches sometimes contain acid-fast bacilli (3 out of 165 examined). When fed on lepers of the cutaneous type they showed numerous bacilli in their digestive tube, sometimes until the 22nd day (direct examination), and they even eliminated them until the 43rd day (centrifugation of the fluid in which they were kept). He did not find bacilli in the skin of a monkey bitten by a leech which had been previously fed on lepers. The author does not conclude affirmatively that the leech plays an active part in leprosy transmission, but advises further study of the matter. —A. DUBOIS

MUIR, E. AND CHATTERJI, S. N. A study of nerve leprosy. Indian Jour. Med. Res. 24 (1936) 119-138.

Based on a study of 81 cases of nerve leprosy the authors discuss the path of infection and the nature of the pathological processes in the nerves, and the bearing of these upon the clinical manifestations. Bacilli were found not in the skin but in the nerves; in cutaneous cases they are found in both structures. In thickened nerves they were found in large masses with but little cellular response and practically no destruction of nerve fibers; in nodular swellings and abscesses they were found in the caseous matter and pus. The route of infection is upwards from the skin through the neurovascular plexuses, in which there may or may not be clinical lesions. The bacilli are probably propelled up along the nerve bundles by the lymph flow, multiplying as they go and accumulating wherever they meet with any obstruction as where the nerve branches or passes over bone. The nerve bundles are a more favorable medium for their multiplication than the skin or nerve sheath, so that whether due to mechanical obstruction or to neurotropism such accumulations do occur. The comparatively slight cellular response, or lack of it, in reaction to the presence of the organisms is additional proof of neurotropism. The peripheral nerves may be the principal reservoirs, at least in incipient cases. There are two types of anesthesia, primary and secondary, the former due to destruction of small nerve branches in and beneath the skin, the latter due to invasion of the larger sensory and mixed nerves and consequent pressure upon fibers which supply healthy skin. The cells most concerned in the reaction to the bacilli are the endothelial cells of the capillaries. In nerves the bacilli are isolated from the capillaries by the medullated nerve fibers, and thus may escape phagocytic destruction. Caseation and abscess formation seem to be determined by a combination of bacillary accumulation and high resistance and consequently powerful cellular response in "recovery reaction." The most marked signs of leprosy are due more to the intensity of cellular reaction to the bacilli than to the actual number of bacilli present. Upon the general health of the patient depends the continuance of any specific resistance he may naturally have. With lowering of these the bacilli tend to multiply, and with their restoration there is, in lesions within which the bacilli had temporarily multiplied, coincident recovery reaction with the appearance then of raised erythematous tuberculoid skin lesions. In the nerves the reaction may be so violent as to

result in caseation and abscess formation and even the destruction of the bacilli. A distinction is drawn between lepra fever or lepra reaction occurring in patients in poor health and the recovery reaction, due to the restoration of the power of the cells to react to the bacillus. Whether or not either of these reactions is of the allergic type, as seen in diseases of a more toxic nature, has not been decided.—[From abstract in *Lep. Rev.* **8** (1937) 35-37.]

DES ESSARTS, J. Q. AND LEFROU, G. Histo-pathologie de la lèpre cutanée. Les lésions des glandes sudoripares. [Histopathology of the skin in leprosy; lesions of the sweat glands.] *Bull. Soc. Path. exot.* **30** (1937) 543-547.

Continuing their study of the changes of the skin in leprosy, the authors discuss particularly those of the sweat glands. First, however, they restate their view that the lepride and the leproma have fundamentally the same architecture and cytology, representing two extremes of the same process. There are intermediate stages, and quite frequently there is transformation from the lepride form to that of the leproma. The lesions may be nodular, tuberculoid or sarcoid, but these forms are closely related. As regards location in the skin they are similar, with a characteristic relation to the sweat glands. Different stages of evolution of the lesions in these glands are described briefly, beginning with the recent leprides and progressing to the lepromatous stage, ending by retrogression and cicatrization or, on the other hand, by progression until the leproma ulcerates. The changes explain the loss of sweat function, and how it is that bacilli may be found in the sweat. They are characteristic of leprosy, these glands being habitually unaffected in other conditions, and so are of diagnostic significance.

—H. W. W.

MUNEUCHI, T. On the leprous changes of the endocrine organs. *Kitasato Arch. Exper. Med.* **14** (1937) 61-74.

This report deals with the findings in the endocrine organs (adrenals, thyroid, parathyroid, pineal, pituitary, testes and ovary) of 190 cases of leprosy that came to autopsy. Only in nodular cases were lepra-cell infiltrations found in these glands; when present they were always visible microscopically. In nerve leprosy, on the other hand, lepra-cell infiltration was absent, except rarely a slight involvement of the testes. The adrenals in nodular cases almost always showed small but visible leprous nodules. The pineal bodies and ovaries showed fairly marked microscopic changes, but these were difficult to see with the naked eye. Comparatively slight changes were found in the pancreas, thyroid and parathyroid glands. The pituitary body showed the least changes.

—M. B. L.

HAYASHI, F. On the giant cell with stellate body in the lymph glands in nodular leprosy. *La Lepro* **8** (1937) 295-299. (Japanese; abstract in English, suppl. p. 5.)

Referring to Mitsuda's description of giant cells with stellate bodies in the skin and testicle in nodular leprosy [*THE JOURNAL* **3** (1935) 311], the author describes an old absorbed nodular case in the lymph nodes of which were many such cells. He has been unable to find similar inclusions in giant cells in tuberculous lesions complicating nodular leprosy, in those in

tuberculoïd macules, or in foreign-body giant cells produced artificially in a leproma by insertion of a lamp wick. In most of the 17 cases with such giant cells reported by Hirsch (all nonleprous) there was some connection with fat or oil. Chaulmoogra oil is given by injection in leprosy, but stellate bodies are seen only in nodular leprosy and not in the neural form. It is therefore certain that their production must have some relation with the leprosy lipid that is present in the nodular lesions.—[From author's abstract.]

SHIONUMA, E. Pathological studies on eye leprosy. I. Leprosy of iris and corpus ciliare. Chapter I. Leprom on the inside surface of the ciliary body. *La Lepro* 8 (1937) 547-563 (Japanese; abstract in English, suppl. p. 41).

Mitsuda, in a monograph on eye leprosy (1910) reported a case with many disseminated, gray-yellowish miliary lepromata on the posterior surface of the ciliary body, found microscopically after cutting the bulbus frontal at the equator. The author, studying under Mitsuda, has examined 78 eyes in the same way and found such lepromata in 48% of nodular (C) cases. These small lesions are most numerous in the orbiculus ciliaris (pars non plicata), especially in the lower part. They consist of proliferated and desquamated pigment epithelium of the corpus ciliare and ora serrata of the retina, which take up leprosy bacilli, often even globi, and fall down onto the lower part of the posterior surface. The condition is illustrated by a colored drawing and two photomicrographs.—[From author's abstract.]

SHIONUMA, E. Pathological studies on eye leprosy. I. Leprosy of iris and corpus ciliare. Chapter II. On iris leprom. *La Lepro* 8 (1937) 641-649 (abstract in English, suppl. 53).

This part of the study deals with 14 cases of leproma of the iris, classified into two groups: (a) those with isolated lepromas on the anterior surface of the iris, and (b) those with infiltrating wave-like iris lepromas arising from the angle of the anterior chamber. On histological examination it was found that the apparently isolated lepromas were not actually isolated, but connected with leprous infiltrations in the body of the iris. Such infiltration is usually predominant in the posterior half of the iris, but when it is marked the anterior part is also affected, so that the infiltration finally becomes visible as a grayish yellow leproma. These lepromas are usually seen in advanced nodular (C) leprosy.—[From author's abstract.]

SHIONUMA, E. Pathological studies on eye leprosy. I. Leprosy of iris and corpus ciliare. Chapter III. On the leprous lipid degeneration in the iris and attitude of the iris pigment cells against leprosy bacilli. *La Lepro* 8 (1937) 651-659 (summary in English, suppl. p. 55).

Leprous lipid degeneration of the iris is demonstrated in sections stained by sudan III, revealing precisely the development of the lepromas of the iris [described in the preceding abstract]. Using this stain, and depigmenting with oxalic acid, four kinds of pigment cells have been observed in the leprous iris and ciliary body: (a) Pigmented epithelial cells and (b) "Klumpenzellen Koganei" (1885), both of which contain pigment granules and groups of lepra bacilli, but slight lipid deposit; these cells are ectodermal and have the same character. (c) Chromatophores, with pigment granules

in the amoeba-like protoplasma, but no bacilli. (d) Vacuolate cells with bacilli and fine shattered granules, the origin of which is doubtful; they may be derived from the chromatophores, or from the "Klumpenzellen" by reduction of the pigment granules, or they may be ordinary histiocytes which have fine pigment granules as well as leprosy bacilli; the last is considered the more probable.—[From author's abstract.]

SHIONUMA, E. Leprous change in a epibulbar dermoid. *La Lepro* 8 (1937) 487-490 (abstract in English, suppl. p. 21).

Examination of a congenital dermoid in the eye of a nodular (C) case revealed, besides sebaceous glands and hair roots, an extensive leprosy infiltration located both subepidermally and around the structures mentioned. The infiltration consisted of lymphocytes and foamy lepra cells containing bacilli.—[From author's abstract.]

HARADA, S. AND YANO, M. Ueber das Guttadiaphot des leprösen Blutes. [Guttadiaphot examination of the blood of lepers.] *La Lepro* 8 (1937) 327-337 (Japanese; abstract in German, suppl. p. 13).

The guttadiaphot test was positive in 92% of 133 bloods from leprosy patients of both sexes and all types and stages of the disease. Done in comparison with the red-cell sedimentation test in 57 cases, it was found to be more sensitive than the latter. On the whole it parallels in degree the clinical condition, and is recommendable as a nonspecific aid in diagnosis.—[From authors' abstract.]

EBERT, M. H. AND BEESON, B. B. Cutaneous leprosy in an American-born patient. *Arch. Dermatol. and Syphilol.* 36 (1937) 213.

The patient was a woman, aged 30, who was born on a farm in Kansas. At the age of 3 weeks she had been removed to Chicago, where the family lived until she was 4 years old. They then returned to a farm in Kansas where she stayed until she was 10; since then she has lived in Chicago or its suburbs. Her father was an American of German descent and her mother was born in Virginia of American stock. No intimate contacts with Orientals or Mexicans can be discovered, or any other possible source of infection. She was married to an American at the age of 20 and has two children. Fifteen years ago she burned her right elbow severely. Six months later painless blisters appeared on the right forearm, some of which were followed by depigmentation. About six years ago, after she had sustained injuries of the legs in an automobile accident, a group of painless, bluish-red nodules appeared above the ankles. These nodules have persisted and new ones have appeared, and now she is a typical cutaneous-type leper with leonine face. (In discussion, Montgomery remarked that several leprosy patients seen by himself and his colleagues at Rochester, Minn., had been born in the United States and had never left it or lived in any of the coastal cities where they might have been exposed to the disease.) —H. W. W.

JACOBSON, F. Tuberculoid leprosy. *Proc. Roy. Soc. Med. Sect. of Dermatol.* 30 (1937) 1054-1056.

This is a report of a case of tuberculoid leprosy in an Indian, aged 25. The bacteriological findings were negative and the histology was that of tuberculoid or sarcoid of Boeck. A photograph and a diagram

illustrate the lesion and the sensory changes on the dorsum of the right hand. —M. B. L.

SHIONUMA, E. On the conjunctivitis leprosa in the macula tuberculoid. *La Lepro* 8 (1937) 481-485 (Japanese; abstract in English, suppl. p. 29).

During his ten years' service as an ophthalmologist in leprosaria the author has seen some ten cases of acute or subacute conjunctivitis caused by tuberculoid lesions affecting the palpebral skin. Tissues removed from the conjunctival fornix in two such cases showed histologically typical tuberculoid changes, with a few leprosy bacilli in nerve endings. This condition he calls "conjunctivitis leprosa maculo tuberculoidea." It is noted that, in contrast, conjunctivitis is seldom seen in nodular (C) leprosy, though more or less foamy-cell infiltration is almost always seen in the conjunctive tissue. This fact illustrates the difference of the nature of these two kinds of the infiltration, which distinguishes fundamentally these two types of leprosy. The article is illustrated with two case photographs and two colored drawings of microscopic fields.—[From author's abstract.]

JOHANSEN, F. A. Similarities in the manifestations of leprosy and tuberculosis. *American Rev. Tuberc.* 35 (1937) 609-617.

A similarity of leprosy to tuberculosis is shown: in their causative organisms, morphologically, chemically, and tinctorially; in the fact that infection rarely if ever occurs in either disease during intrauterine life, though in both susceptibility is greatest in early childhood; in the constitutional and conditional factors on which frank manifestations of both diseases depend; in their chronic courses and their febrile reactions; in the manifestations of tuberculoid skin lesions and some of the early lesions of dermal leprosy; in the leprid and tuberculoid, and the occurrence of tuberculoid lesions in both diseases; in the frequency of pulmonary tuberculosis as a complication and a cause of death in cases of leprosy; in many of the social problems presented by both diseases.—[From author's summary.]

RABELLO JR. A proposito das reaccoes da lepra. [On the reactions of leprosy.] *Arch. Dermatol. e Syphil. São Paulo* 1 (1937) 140. (Abstract).

The author describes three types of reactions of apparently differing causation. The first type is excited by the action of antigens such as the vaccine virus or tuberculin, and appears to be most readily produced in the more bacillated forms of the disease; its mechanism, the author believes is not correctly related to the phenomenon of parallergy. The second type comprises the so-called tuberculoid reactions, in which the erythrocyte sedimentation test and positive Mitsuda reaction are of value; its mechanism appears to be based on specific allergy. The third type is the commonly observed reaction, with high sedimentation index and negative Mitsuda test; its mechanism the author relates to the phenomenon of polyvalent sensibility.—[From abstract.]

FERNANDEZ, J. M. M. El cuadro clinico de la reaccion leprosa. [Clin picture of lepra reaction.] *Semana Med.* (1937) No. 20.

This is an illustrated article, intended for physicians in general, giving the necessary information to permit them to distinguish lepra reaction from other similar conditions. —G. BASOMBRIO.

MORAES, J., Jr. O metabolismo basal na lepra. [Basal metabolism in leprosy.] *Rev. Brasileira Leprol.* 5 (1937) 287-317.

The basal metabolism rate is always increased in leprosy, even when there is no determinable condition capable of provoking this increase. Lepra reaction seems to influence metabolic changes generally, increasing the basal metabolism rate. In quiescent cases of leprosy the rate tends to return to within the normal limits.—[From author's summary.]

HASEGAWA, K. Studies on the blood pressure of lepers (part 1). *La Lepro* 8 (1937) 576-594 (Japanese; abstract in English, suppl. p. 45).

The author has studied the blood pressure in 1,229 cases of leprosy, 813 males, 392 females, from 5 to 77 years old. Taking into consideration various conditions such as sex, age, height, weight, girth of the chest, and the type and intensity of disease and its state as regards activity, it is concluded that the blood pressure in a majority of cases is below normal (about 15-25 mm. Hg); is somewhat lower in female lepers, as in normals; increases with age, body weight, body height and chest girth but decreases with intensity and activity of the disease; is lower in the nodular type than in the macular or nervous type; is relatively near to normal in mild cases of the macular and nervous types.—[From author's abstract.]

DE SOUZA CAMPOS, N. AND LONGO, P. Atrophia circumscripta aõs musculos da eminencia thenar como manifestação inicial e residual da lepra. [Circumscribed atrophy of the thenar eminence as initial and residual manifestations of leprosy.] *Rev. Brasileira Leprol.* 5 (1937) 29-51.

The authors, having observed five cases with circumscribed atrophy of the muscles of the thenar eminence as initial and residual manifestations of leprosy, emphasize the importance of using the classical electrodiagnostic method in connection with the neural form of the disease. It should be done in all cases of atrophy, even the lesser, for it is perhaps the most sensitive test of an organic lesion and the best topographical aid in locating leprosy lesions. Periodically repeated the method permits evaluation of progression of the disease. In the cases studied the degenerative process involved only the terminal motor branches of the ulnar nerve which innervates the flexor brevis, adductor pollicis and its interosseal dorsal.—[From authors' summary.]

NITTIS, S. Prominence of the right sterno-clavicular junction in lepers. *Urol. and Cut. Rev.* 41 (1937) 625-630.

The author has observed that the sterno-clavicular joint tends to abnormal prominence in leprosy. This condition was found in 26 (17%) of the 147 inmates of Abu Zaabal Leper Hospital in Cairo, and in 29 (30%) of 96 inmates of the Cyprus Leper Hospital at Nicosia. It was found in about 40% of all patients who gave a family history of leprosy (94 cases), and in about 10% of those who gave negative family histories (149 cases). The author believes that the condition is the result of specific involvement of the joint, acquired in early life and provoked by right-handedness, although its presence in those with negative family history is also taken as an evidence of a possible infection in adult life. He cites two left-handed individuals with prominence of the left sternoclavicular joints, and an ambidextrous one with double prominence.

—M. B. L.

HASSELMANN, C. M. Adenoma sebaceum et acanthoides cysticum resembling leprosy. *Lep. Rev.* 8 (1937) 31-32.

The author records a case, illustrated by a photograph and a microscopical section, of adenoma sebaceum et acanthoides cysticum, which might easily have been mistaken for an advanced case of nodular leprosy of the face until the microscope revealed an enormous increase in the sebaceous glands with adenomatous and cystic changes.—[From abstract in *Trop. Dis. Bull.* 34 (1937) 602.]

VAN BREUSEGHEM, R. Contribution a l'étude du diagnostic de la lèpre: Les troubles de la sudation. [Diagnosis of leprosy; disturbances of perspiration.] *Ann. Soc. belge Méd. trop.* 17 (1937) 381-384.

A simple method of demonstrating nonsweating areas without the use of pilocarpine is described. The area to be tested is carefully rubbed with a dry pad and painted with iodine solution (iodine 65, potassium iodide 25, alcohol 90% 910); when dry it is dusted with rice starch. This turns blue where moisture occurs, remaining white in the nonsweating areas (positive test). The patients are made to undergo light muscular exercise before the test materials are applied, and again afterward if necessary. —H. W. W.

VAN BREUSEGHEM, R. Contribution a l'étude du diagnostic de la lèpre: La ponction ganglionnaire. [Diagnosis of leprosy; lymph node puncture.] *Ann. Soc. belge Méd. trop.* 17 (1937) 375-379.

To ascertain the bacillus content of the inguinal lymph nodes, gland puncture has been performed (by the dry-needle technique of Broden and Rodhain, which is described) on (a) cases of strongly positive (C) leprosy; (b) 103 cases of leprosy with few or no bacilli, 61 under treatment and 42 untreated; and (c) 95 nonlepers from the same region of the Belgian Congo, where nearly 10% of the population has the disease. Many bacilli were always found in the first group. The findings in the others are as follows:

	<i>Negative</i>	<i>Positive</i>
Lepers, treated (61).....	49 (80%)	12 (20%)
Lepers, untreated (42).....	28 (67%)	14 (33%)
Nonlepers (95).....	64 (67%)	31 (33%)

Thus bacilli were found in a much higher proportion of the untreated cases than of the treated, and the nonleprous group gave as high a positive figure as did the untreated lepers. In addition, the smears of a few of the other leprosy cases, and those of no less than 17 (18%) of the non-lepers contained acid-fast granules, without definite bacilli. The author is inclined to believe that these granules are products of disintegration of the Hansen bacillus, but since that could not be proved these cases were included among the negative ones. Lymph node puncture is thus of no value in actual diagnosis of leprosy in so heavily leprous a region, but it may afford valuable information as regards the ultimate capacity of individuals to resist the infection. —H. W. W.

MOSTERT, H. v. R. Gland puncture—its value in the diagnosis of leprosy. *Lep. Rev.* 8 (1937) 54-56.

Because of the difficulty of demonstrating bacilli in neural leprosy by ordinary methods, the author resorted to gland puncture. This was done

in 80 native lepers, originally classified as maculo-anesthetic. A few drops of saline are injected into a palpable gland, which is then massaged while the needle is in situ; the fluid obtained by aspiration is examined. Only 13 cases (16%) gave positive results; they were later found to be early nodular or infiltration cases. The 67 negative cases showed no clinical or bacteriological evidence of nodular leprosy. In the author's experience gland puncture and skin scraping give earlier positive results than nasal or blood smears, which are positive only after repeated trials. In apparently closed cases gland smears serve to indicate the stage of retrogression, but the procedure is of little or no value in the diagnosis of neural leprosy.

—M. B. L.

BAPTISTA, L. Evidenciação das manchas leprosas. [Demonstrating leprous macules.] *Rev. Brasileira Leprol.* 5 (1937) 369-372.

The author presents, with striking comparative photographs, four cases in which flat macules, previously difficult to outline, had been made conspicuous by multiple injections of histamine, spaced at intervals of 5 cm. —[From abstract in *Brasil-med.* 51 (1937) 473.]

GRANGER, A. X-rays in the diagnosis of some tropical diseases. *Jour. Trop. Med. and Hyg.* 40 (1937) 113-115.

The author has several times diagnosed leprosy of the extremities on seeing what he considers a characteristic pointed or filed-down destruction of the phalanges, and occasionally of the metatarsal bones also. Except in cases of leprosy he has never seen this type of destruction or absorption of the phalanges of the fingers. Similar changes of the phalanges of the toes have been seen in Raynaud's disease, and of the phalanges of the little toe in Ainhum, but these diseases present no difficulties in diagnosis.—H. W. W.

WOODMAN, H. M. Some results of treatment of leprosy in the Southern Sudan. *Trans. Roy. Soc. Trop. Med. and Hyg.* 30 (1937) 631-638.

The author reports on the results of treatment in the biggest leper settlement in Africa, located in the Bahr el Ghazal area of the Sudan. The records of some 3,500 cases are analyzed, these extending over a period of 6 years, which he considers sufficiently long to permit making a definite contribution concerning the efficacy of treatment. In summarizing, he states that there is definite evidence in favor of treatment with chaulmoogra derivatives over a period of 3 to 4 years, but that after this period further treatment appears to be of little or no avail except in special cases. A big proportion of early cases become arrested without interference, but are assisted to do so by treatment. No method of treatment so far employed holds out much prospect for the advanced cutaneous type case; most of those who have survived are maimed and disabled. The settlements are effective in removing the chief foci of infection from the districts and in centralizing and simplifying the control of cases. In spite of the great incidence of leprosy only 10% of cases appear to be dangerous to their neighbors, so far as can be judged in the absence of repeated and exhaustive laboratory examinations.

—H. W. W.

DE MOURA COSTA, H. As doses fortes de chaulmoogra no tratamento da lepra. [Large doses of chaulmoogra in treatment.] *Rev. Brasileira Leprol.* 5 (1937) 67-86.

The author attempted to accelerate the effects of chaulmoogra ethyl esters by increasing the dosage. In adults, supposing that the usual dosage was 5 cc. weekly, he doubled or tripled it. In children the treatment was even more intensive, from 0.2 to 0.3 cc. per kilo per injection, giving 0.6 to 0.9 cc. per week. This treatment was followed for long periods, in several cases for 2 years. Local tolerance was good and general tolerance absolute, with complete absence of toxic phenomena. The sedimentation index was improved and there was increase of weight, though a few patients showed slight decrease. The clinical as well as the bacteriological results were superior to those obtained by the usual treatment. Tolerance as well as the therapeutic results were more sensitive in children than in adults.—[From the author's summary.]

TOLENTINO, J. Further studies on factors supposed to influence the result of treatment of leprosy. *Month. Bull. Bur. Health (Manila)* 17 (1937) 55-61.

The factors of number of bacilli in the lesions, the types of the lesions, the regularity of treatment, the dosage of the antileprotic drug and the total amount of it received are studied in an attempt to determine their influence on the results of treatment. Amenability to treatment is, as a rule, inversely proportional to the number of bacilli present. Macules are more amenable than infiltrations, which in turn are more so than nodules and papules. Localized lesions are more amenable than diffuse ones. The more hyperemic a lesion is the better. Improvement rate increases with regularity of treatment. Doses of 3 to 5 cc. given regularly once a week, with total amounts of from 75 to 125 cc. per semester, gave the best results, while excessive treatment (above 5 cc. per dose) is detrimental.—M. B. L.

GONZALEZ, C. S. [Methylene blue in the treatment of leprosy.] *Med. Mexicana* (1937) No. 290.

Having applied Montel's method of treatment in 12 cases, the author concludes that it is absolutely inoffensive and is perfectly tolerated by the patients. Its curative value, at least temporarily, seems superior to antileprol though there does not follow any disappearance of lepromas or diminution in nerve enlargements. Improvement is manifested by better appetite, a better general condition, greater tranquility and cicatrization of some of the ulcerated lesions. The neural form of the disease is most benefited.—[From abstract in *Urol & Cut. Rev.* 41 (1937) 516.]

HAYATA, H. AND OBI, K. Ueber die Germanin-Behandlung der Lepra. [Germanin treatment.] *La Lepro* 8 (1937) 417-429 (Japanese; abstract in German, suppl. p. 23).

Germanin was administered to 29 cases, one course of 5 injections each of 0.5 gm. Disturbances of sensibility, macules and nodules were often improved, the best results being with respect to the first of these conditions.—[From authors' abstract.]

KOMATSU, H. Ueber die Resultate der Phenylthiouretan-Behandlung bei Lepra. [Phenylthiouretan treatment.] *La Lepro* 8 (1937) 339-359 (Japanese; abstract in German, suppl. p. 15).

Since 1934 the author has employed an organic sulphur preparation, phenylthiouretan, in 5, 10 and 20% solutions in olive oil. Doses of about

5 cc. were given intramuscularly 3 times a week, the number of injections varying from 16 to 268. Of the 38 cases treated (18 nodular, 17 macular and 3 nervous), 28 were benefited (9 nodular, 15 macular and 2 nervous). Improvement occurred relatively quickly. Side-effects in the form of sulphur intoxication and gluteal abscess occurred.—[From author's abstract.]

TISSEUIL, J. Essai de traitement de lèpres cutanées par le sérum sanguin de lèpres nerveuses. [An attempt to treat lepers of the cutaneous type with serum of neural cases.] Bull. Soc. Path. exot. **30** (1937) 227-230.

Supposing that there exist in the blood serum of patients with neural leprosy substances with defensive properties, the author has treated five cases of the cutaneous type with such serum, using doses of 10 to 20 cc. at intervals of 2 to 7 days. Some improvement was noted, but on the whole there was no evidence of activity useful for therapeutics.—[From abstract in *Rev. Brasileira Leprol.* **5** (1937) 284.]

SARKAR, S. L. AND BHATTACHARYA, B. M. The effects of the injections of milk preparations in leprosy. *Indian Med. Gaz.* **72** (1937) 398-401.

In 5 out of 9 cases of leprosy, in which the principal symptoms were eczema, rheumatic pains and edema of the extremities, there was improvement of these symptoms after five to twelve series of injections with lactoprotein. The remaining 4 cases, with nerve pains secondary to neural leprosy, showed no improvement. In 3 other cases there was improvement of the ulcers and eczema after administration of a combined streptococcus and staphylococcus vaccine. They believe that the milk preparation improves the general health of the cutaneous cases, and clears the associated eczema and some varieties of ulcers as well as the edematous condition resulting from chronic inflammatory congestion. It also relieves rheumatic pains in these cases, but not the pains in the neural type. —M. B. L.

GUPTA, K. K. Chloretone in nerve reaction. *Lep. India* **8** (1936) 41.

Among the drugs advocated for the relief of the common and often severe nerve pains, ephedrine and intradermal injections of hydnocarpus oil esters are the most effective, but sometimes these remedies do not give relief. The author has tried injections of chloretone (5 grains in 1 cc. of olive oil), multiple injections being given subcutaneously along the course of the nerve. In some cases it proved more efficacious than ephedrine. Except for slight edema at the site of injection, no untoward effect was met with.—[From abstract in *Lep. Rev.* **7** (1936) 149.]

VALENTE, E. C. Tratamento das úlceras de leprosos e das suas manifestações dolorosas. [Treatment of ulcers and of the painful manifestations of leprosy.] *Rev. Brasileira Leprol.* **5** (1937) 141-158.

The author, after describing his method of treatment of ulcers by intradermal infiltration with antileprol, concludes that this treatment with antileprol and with creosoted ethyl esters around the ulcers not only relieves the pain but helps cicatrization. Repeated infiltrations of the same ulcer, though they relieve pain, may sometimes interfere with the progress of the cicatrization, and it is advised that infiltration be repeated only when there is pain. —L. DE SOUZA

KERR, G. M. The organization of occupational therapy. *Lep. Rev.* 8 (1937) 64-69.

The organization of occupational therapy at the Dichpali leper home and hospital is described. Of the 700 patients, 170 are being educated. The remainder are divided into gangs for various forms of domestic and agricultural work, including a malaria gang, who all work three hours a day. Only a small part of the food supply is as yet grown by the patients, but it is increasing. The patients realize the benefit to their health from such occupation.—[From abstract in *Trop. Dis. Bull.* 34 (1937) 603.]

TISSEUIL, J. Les injections d'éther éthylique, d'huile de chaulmoogra, intramusculaires, et l'ingestion de savon de gorli (*Oncoba echinata*) ont-elles une action préventive dans la lèpre. [Have antileprosy drugs a preventive action?] *Bull. Soc. Path. exot.* 30 (1937) 549-551.

Working at the Bamako Central Leprosy Institute, the author has attempted to ascertain whether antileprosy drugs have a preventive effect. Thirty children who were in contact with one or both of their leprosy parents were treated regularly, for periods varying from one to two and one-half years, with fortnightly injections of 3 cc. of chaulmoogra ethyl esters, or with a soap of gorli oil by mouth, or both. Ten of them (33%) have become leprosy, showing that the treatment given had no preventive effect on them. —H. W. W.

DE SOUZA CAMPOS, N. As altas aos doentes de lepra. Observação de 4 annos no Departamento de Prophylaxia de Lepra. (Est. de S. Paulo, Brazil.) [Parole of leprosy cases; four years experience of the São Paulo leprosy service.] *Rev. Brasileira Leprol.* 5 (1937) 341-356.

Of 643 patients on parole between June, 1933 and July, 1937, only 59 (9.3%) were not under control, and deducting 15 who had left the State reduces that figure to 6.8%. Of the 584 patients under control, 107 (17.6%) showed relapse. As a factor of relapse the form of the disease was most important. As many as 100% of those with the nodular form relapsed, 38% of the mixed form and 12% of the macular form. Not one pure neural or tuberculoid case had relapsed. On the basis of these observations it is proposed to alter the parole regulations. For cutaneous cases (mixed and nodular) 24 months of negative examinations is demanded; macular cases 18 months, and for pure neural and tuberculoid 12 months. Proposals have also been made concerning the control of patients on parole, to utilize the various hospital and dispensary services of the State.—[From author's summary.]

MANALANG, J. The morphology of *My. leprae* during the course of treatment. *Month. Bull. Bur. Health (Manila)* 17 (1937) 3-10.

The author has studied the morphological appearances of the bacilli in 124 improved patients receiving intensive chaulmoogra treatment. The predominant forms were: (a) solid-staining in 3 cases, (b) segmented in 91, and (c) granular, disorganized in 30. About six months later they had changed from solid to segmented in 2 of the 3 cases of the first group and from segmented to granular in 60 of the 91 on the second group. Most of the third group remained predominantly granular, but 7 of the 30 had changed to segmented. The possibility is considered that these morphological changes

do not result from the treatment but occur as a natural process in the developmental cycle of the organism. —M. B. L.

MANALANG, J. The morphology of *My. leprae* before treatment in readmitted relapsed cases. *Month. Bull. Bur. Health (Manila)* 17 (1937) 11-17.

Fifty-two relapsed cases readmitted to Culion, where treatment was temporarily suspended, were examined by the author, who found no correlation between the predominant forms of the bacilli and the length of preparole negative period, the length of time between parole and readmission, the clinical type of the disease or the advancement of the lesions. He entertains the probability that segmentation and granulation of the bacilli may be normal processes in the developmental cycle of the organism and that such changes may occur even without treatment; the latter probably serves only to accelerate them. When observed in clinically active and progressive lesions they may not represent a degenerative process, but may rather be manifestations of growth and proliferation corresponding to bacterial activity and progress. —M. B. L.

MANALANG, J. Removal of acid-fastness from *My. leprae*. *Month. Bull. Bur. Health (Manila)* 17 (1937) 47-54.

Inguinal lymph nodes, secured aseptically postmortem from two C3 cases of leprosy, were cut into small pieces, dehydrated for 1 minute in 95% alcohol and placed in sterile test tubes containing: (a) oleic acid, (b) iodized *H. wightiana* ethyl esters, and (c) *H. wightiana* oil, and incubated at 37°C. Control smears, which showed acid-fast *My. leprae* in globi, were made at the time and after 2 and 7 days and 1, 2 and 4 months. In the chaulmoogra preparations the characteristic globus formation was broken up and the bacilli rendered acid-sensitive, and finally they seemed to disintegrate. The oleic acid appeared to induce acid-sensitiveness more rapidly. The author indicates a belief that there is a more or less similar action of chaulmoogra preparations on the bacilli in vivo, and suggests consideration of the possible usefulness of oleic acid in treatment. —M. B. L.

HAGEMANN, P. Fluorescence microscopy of leprosy bacteria in nasal mucus and in blood. *Deutsche med. Wchnshr.* 63 (1937) 514.

The author describes a method of demonstrating microbes by fluorescence, with special reference to the leprosy bacillus in the nasal mucus or thick drop blood preparation. In this technique micro-organisms are stained with fluorescent substances, the so-called fluorochromes, and are then observed by the fluorescence that develops under the influence of ultraviolet irradiation, using a special microscope. Specimens with leprosy bacilli are treated with a phenol-berberine sulfate solution and washed briefly with hot water. The bacilli appear as yellow to green luminant rods, which stand out in contrast to the more weakly fluorescing background. The author believes that this method of demonstrating them is superior to others.—[From abstract in *Jour. American Med. Assoc.* 108 (1937) 2006.]

LEGENDRE, F. Note sur la recherche des bacilles de Hansen dans les gouttes épaisses. [Thick-drop examination for the leprosy bacillus.] *Bull. Soc. Path. exot.* 30 (1937) 547-549.

To determine the value of the thick-drop examination in the diagnosis of leprosy the author, working in Cambodia, applied that method in parallel

with the usual ones in the examination of 107 suspects submitted for diagnosis. In no case did he find the bacillus in the blood drops when they were not to be found otherwise. The same results were obtained in examining material from 237 patients in the leprosarium at Troeung.—H. W. W.

VAN BREUSEGHEM, R. AND MOULES, E. Pratique de la coloration du bacille de Hansen dans les frottis. [Staining of the Hansen bacilli in smears.] Ann. Soc. belge Méd. trop. 17 (1937) 137-139.

The authors have come to the conclusion that leprosy bacilli in smears are best stained by immersion for 2 hours in ordinary cold Ziehl-Neelsen stain and decolorization with a mixture of 9 parts by volume of 95% ethyl alcohol and 1 part of sulphuric acid. Counterstaining is done with Kuhne's blue. —A. DUBOIS

SUZUKI, S. Kulturversuch der Leprabazillen. I. Mitteilung. [Attempt to cultivate the leprosy bacillus.] Japanese Jour. Dermat. and Urol. 42 (1937) 36 (abstract).

Attempts were made to cultivate the leprosy bacillus from material from more than 100 cases of leprosy (nodular, macular and neural), and several cases of rat leprosy. This was done with a modified milk-egg-potato nutrient medium. Intentionally, no preliminary treatment with acids or the like was used. In a high percentage of instances there were grown certain acid-negative microbes, coccoid, diphtheroid and filamentous, which could be transformed one into another and in which a certain degree of acid-fastness could gradually be restored. The literature on the subject is dealt with critically.—[From a translation of original abstract.]

SARDJITO AND MOCHTAR, A. Een poging tot het cultiveren van leprabacillen. [Attempted cultivation of the leprosy bacillus.] Geneesk. Tijdschr. Nederlandsche Indië 77 (1937) 1995-2065.

In 1932 the authors isolated on the medium of Lubenau, Souton and Kirchner a strain of acid-fast bacilli from an abscess of an N3 patient with acid-fast bacilli in the nasal mucosa. Nonpathogenic for several animals, including the guinea-pig and the grey monkey (*macacus cynomolgus*), this organism proved pathogenic for black monkey (*Semnopithecus maurus*) and for mice. Later the patient died of tuberculosis and an organism pathogenic for guinea-pigs was isolated then. Details of the animal inoculations are given, and especially of complement fixation tests made with sera of lepers. It is concluded that one of the strains is the tubercle bacillus but that the other (strain "Sidik") is probably *Mycobacterium leprae*.—[From authors' summary.]

RODRIGUES DE SOUZA, A. Bacillos acido-resistentes dos cadaveres. [Acid-fast bacilli in cadavers.] Brasil-med. 51 (1937) 473 (abstract).

The author has examined 19 bodies, of which 6 were those of lepers, and in all of them encountered large numbers of acid—and alcohol-resisting bacilli with polymorphism identical with that of the bacilli of Hansen and Koch. It was not possible to say whether the bacilli found in the bodies of lepers were the Hansen organism or simply acid-fast of the cadaveric flora.—[Translation of abstract.]

TERADA, M. AND NOZAKI, M. Studies concerning human and rat lepra bacilli and the other acid-fast organisms. Part II. Biological studies

on the so-called nonpathogenic acid-fast bacteria. Kitasato Arch. Exper. Med. 14 (1937) 142-164.

These biological studies on 50 strains of different acid-fast bacilli, including human and rat leprosy bacilli, all grown in Petraghani's medium, revealed catalase and lipase action, as well as fermentative reactions on monosaccharides (glucose, levulose and galactose). Oxydase, gelatinase, caseinase and amylase action did not occur. The fermentative action varies in degree for the different organisms. —M. B. L.

SAKURAI, H. Experimental studies on the lepra bacilli penetrating through the nasal mucous membrane. La Lepro 8 (1937) 491-505 (Japanese; abstract in English, suppl. p. 33).

Referring to Sticker's opinion that leprosy bacilli can penetrate the nasal mucous membrane, the author reports experimental observations on the matter. Leproma emulsion was introduced into the nasal cavities of three rabbits and three mice for 30 minutes, and also into the conjunctival sac in one of the rabbits. In 1250 microscopic sections of the nasal mucosa, 37 bacilli were found; they occurred not only in the shallow layer directly beneath the mucous membrane and near the gland, but also in the walls of blood vessels. These bacilli had passed through the nasal mucosa without any pathological change. Twenty-six photo-micrographs showing bacilli in the tissue are reproduced. In a tabulated summary of previously published studies of penetration of bacilli through skin of the leg of a neural leper, injured and normal skins of rabbits and mice, and the conjunctiva of rabbits [THE JOURNAL OF INVESTIGATIVE DERMATOLOGY 1 (1936) 407; 5 (1937) 5] it is shown that there was most penetration in injured skin, next in skin from which the hair had been pulled, third through normal skin when the emulsion was rubbed in, fourth the mucous membranes of the eyelid and nostril, and least in healthy skin without friction. It is concluded that while leprosy bacilli can penetrate the nasal mucous membrane, this mode of entry is much less important than through the wounded skin.—[From author's abstract.]

YAMANAKA, M. AND KIRIYAMA, T. Studien über die säurefesten Bazillen des Bodens. [Studies of the acid-fast bacilli of the soil.] La Lepro 8 (1937) 401-416 (Japanese; abstract in German, suppl. p. 21).

The soil from the garden of the authors' school has been examined for the presence of acid-fast bacilli, using Ohtawara's method and Petrognani's medium, glycerine potato, glycerine agar and glycerine bouillon. Bacilli were cultivated in 65% of the attempts on the first two of these media, and 60 and 40% on the others. These bacilli biologically represent nine strains, two of which kill mice in 10 to 12 days.—[From authors' abstract.]

McKNIGHT, R. S. AND LINDEGREN, C. C. Bactericidal effects of vapors from crushed garlic on *Mycobacterium leprae*. Proc. Soc. Experim. Biol. and Med. 35 (1936) 477-479.

The following strains were used in these experiments: A nonacid-fast yellow one (Beckwith), a nonacid-fast orange one (Kessel), and an acid-fast yellow one (American Type Culture Collection). Petri dish agar cultures were spread with heavy suspensions of the organisms and 1 gm. of garlic placed in the inverted cover of each, not in contact with the cultures. Controls were made without the garlic, after exposing the plates to the garlic vapors

for from 1 minute to 2 hours. Incubation was for 3 days. It was found that after 32 minutes the growth was markedly inhibited and after an hour or more practically no growth occurred.—[From abstract in *Trop. Dis. Bull.* 34 (1937) 607-608.]

DE SOUZA CAMPOS, N. Nota previa sobre a reação de Mitsuda nas crianças dos preventorios de Jacareby e Santa Therazinha. [Mitsuda reaction in the children of the Jacareby and Santa Therazinha preventoria.] *Arch. Dermatol. e Syphil. São Paulo* 1 (1937) 140 (abstract).

The Mitsuda test applied to 331 children gave the following results: negative 116 (35%), positive 135 (41%), strongly positive 80 (24%). All of the children isolated at birth were negative; the more strongly positive reactions were in relation with the longer periods of life with the leprosy parents; the children of parents with neural leprosy gave positive results; the reaction is negative in children of parents with mixed or nodular form of leprosy, even if they show no bacilli.—[From abstract.]

RABELLO, JR. AND ROTBERG. Note preliminar sobre a allergia histologica na lepra. [Histologic allergy in leprosy.] *Arch. Dermat. e Syphil. São Paulo* 1 (1937) 140-141 (abstract).

The nodules produced in positive intradermal leprolin reactions (Mitsuda) show histologically distinct tuberculoid changes, not only in cases of tuberculoid leprosy but also in some of the few positive reactions observed in cases of the cutaneous type. This tuberculoid structure of the reaction nodule reflects the more or less intense state of allergy in which the body is found, independent of the form of the disease. It is, naturally, seen to a lesser degree in cutaneous cases, in which the general reaction of the body is diminished.—[From abstract.]

NITTO, S. Studien über die Hautreaktion und Allergie bei Lepra. I. Mitteilung: Beiträge zur experimentellen Untersuchung über Antigen. [Studies on the skin reaction and allergy in leprosy. I. Experimental investigation of the antigen.] *La Lepro* 8 (1937) 313-325 (Japanese; abstract in German, suppl. p. 9).

After describing the preparation of leprolin, the reaction with which is stated to have been observed first by Y. Hayashi in 1917 and confirmed in 1918 by Mitsuda, the author points out that this test cannot be considered one of allergy because positive reactions occur in nonleprosy persons. In an attempt to explain the similarity of reaction in the healthy and in neural-type (macular and nervous) lepers, he prepared an antigen from inguinal lymph nodes rich in bacilli, counted its bacillary content and made tests with it undiluted (200 bacilli per 0.01 cc., 0.1 cc. being injected), and in 10, 20, 30, 40 and 50 times dilution. With the original material and the first dilution the usual results were obtained. With the 20—times dilution the refractory stages were often retarded. With the 30—and 40—times dilutions the reactions in nonlepers were nearly all negative, while in most of the neural-type cases they were positive. Even these, however, were nearly all negative with the 50 times dilution. Conclusions are deferred.—[From author's abstract.]

NITTO, S. Studien über die Hautreaktion und Allergie bei Lepra. II. Mitteilung. Beiträge zur experimentellen untersuchung über die Allergie

zwischen dem Leprabacillus, Alttuberkulin und den anderen säurefesten Bacillen. [II. Experimental investigation of allergy to the leprosy bacillus, old tuberculin and other acid-fast bacilli.] *La Lepro* 8 (1937) 519-534 (Japanese; abstract in German, suppl. p. 35).

The investigation of skin reactions in lepers and nonlepers has been continued using (a) the usual leprosy antigen, (b) antigens made of acid-fast saprophytes, (c) one made of the smegma bacillus and (d) old tuberculin. Reactions with (a) were as usual, different lots quite similar; those with (b) were negative in about one-third of the nodular cases but weakly positive in the others, and also in practically all of the other types of lepers and all of the nonleprosy; to the contrary, antigen (c) gave only a few positives, none strong, in any of the groups tested. The results with tuberculin led to the conclusion that the Pirquet reaction is not a specific one but is non-specific and can be influenced by nonspecific allergization with the leprosy bacillus, and acid-fast saprophytes.—[From author's abstract.]

MINAMI, S., KAWASAKI, S. AND HUZIMOTO, S. Ueber die serochemische Reaktion bei Lepra. [The serochemical reaction in leprosy.] *Japanese Jour. Dermat. and Urol.* 42 (1937) 37 (abstract).

The authors have used in leprosy a modification of the Fuchs cancer serochemical reaction, provisionally called the MHH reaction; several reports on it have previously been published from their clinic. Kawasaki has now re-examined it, and has observed a positive leprosy reaction (including the immunity reaction) in 95% of 105 cases. At the beginning of leprosy a so-called immunity reaction is often found, and even occasionally an abnormal, nonleprosy reaction. Fibrin or serum of neural leprosy is the most suitable substrate for the reaction. Huzimoto tried it in 60 cases of rat leprosy and obtained positive reactions (including immunity reactions) in 85%. The immunity reaction frequently appears up to 6 months after inoculation but not after 7 months, after which time only lepra reaction proper is observed. Up to 4 months there is in 15% of the cases an abnormal, nonleprosy reaction. Frequently, therefore, at the beginning of leprosy the diagnosis cannot be established by this reaction. Huzimoto was able to use as the antigen a substrate of rat leprosy nodules as well as the serum substrate itself.—[From a translation of original abstract.]

KONO, M. A study on Ide's reaction in cases of lepers. *La Lepro* 8 (1937) 595-600 (Japanese; abstract in English, suppl. p. 47).

The Ide reaction has been done in 150 cases of leprosy, in parallel with the Wasserman and Murata reactions and Tamiya's "zero" test. The Ide reaction was positive in 9.3% of all cases, with no significant variation dependent on type. In three cases it was positive when the other tests were negative, i.e., in the absence of syphilis.—[From author's abstract.]

COLE, H. I. AND CARDOSO, H. Hydnocarpic and chaulmoogric acids and ethyl esters. *Jour. American Chem. Soc.* 59 (1937) 963-965.

The published data on the physical constants of hydnocarpus and chaulmoogric acids and ethyl esters are incomplete and inaccurate. Methods of preparation of the pure acids and ethyl esters are described and their physical constants have been determined. The melting points for mixtures of hyd-

nocarpic and palmitic and of hydnocarpic and chaulmoogric acids have been determined.

—[AUTHORS' SUMMARY.]

PAGET, H. The liquid acids of sapucainha oil. Jour. Chem. Soc. (1937) 955-960.

Sapucainha oil (from *Carpotroche brasiliensis*) resembles very closely the oil of *Hydnocarpus wightiana*. The acids fall into three principal fractions: (a) crystalline acids, comprising chaulmoogric, hydnocarpic and palmitic acids (65-70%); (b) liquid acids, consisting of a certain amount of the preceding ones together with oleic acid (4%), ketochaulmoogric and ketohydnocarpic acids (4%) and dehydrochaulmoogric acid (9%) which contains two unsaturated linkages; and (c) tarry acids (9%). It has been shown by Paget, Trevan and Attwood [THE JOURNAL 2 (1934) 149] that ethyl esters of (a) are not more irritant on injection intradermally in guinea pigs than those of the total acids, when carefully prepared and freshly distilled, and that they withstand distillation at 350°/760 mm., but they are improved by addition of 0.5% iodine. The esters of (b) are even more bland, but those of (c) are highly irritant, and the suggestion was made that this irritant fraction resulted from oxidation of ethyl chaulmoograte and hydnocarpate by exposure to air. These conclusions are supported by Cole and Cardoso [THE JOURNAL 5 (1937) 277] as a result of clinical experiments. Ethyl chaulmoograte and also sapucainha oil undergo considerable change on exposure to sunlight and air, with a rise in acid and saponification value and in specific gravity and a marked fall in iodine value and specific rotation. The only products isolated from these exposed preparations are ketochaulmoogric and ketohydnocarpic acids; the greater part is obtained as a noncrystalline tar, closely resembling fraction (c) in character. These results emphasize the importance of preparing and storing hydnocarpus preparations under conditions which will minimize the risk of autoxidation.—[AUTHOR'S SUMMARY.]