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.

LAMBIE, C. G. The history of leprosy. Med. Jour. Australia I (1938) 947-962.

The author reviews the ancient literature regarding leprosy and concludes that there is no evidence of its existence in Europe prior to the 1st or 2nd century A.D. It became prevalent during the Middle Ages and then declined markedly and finally all but disappeared. The reasons for its disappearance are complex and not thoroughly known. That there was any decrease in virulence of the infecting organism is denied by the contemporaneous spread of the disease in America and elsewhere. Regarding the population, on mathematical grounds the possibility of the susceptible persons being weeded out, leaving only a nonsusceptible stock, seems unjustified. This means of raising group immunity is applicable in highly infectious diseases, but not in one of such low infectivity as leprosy. Another and seemingly more probable means of raising group immunity lies in the immunization of large numbers of people by means of small doses of the organism; this seems applicable to the situation because lepers were not completely segregated. Perhaps the explanation for the spread and later decline of leprosy lies in the social customs of the times. It spread during the Middle Ages, when social conditions were at their worst, and disappeared with the coming of the Renaissance. But within this field are many factors. It is possible that vitamin deficiency was at least a contributing factor. Perhaps it is significant that the custom of wearing night clothes arose in the fourteenth century; leprosy disappeared from a settlement of Norwegians in Minnesota when they adopted the custom of separate bedrooms in place of one family bed. The Black Death probably helped in the disappearance of leprosy: it killed one-half of the total population and probably the lepers were less resistant than others; perhaps also it killed off insects which may have been instrumental in conveying infection; it hastened social changes, such as the enclosure acts, which disrupted society and rendered survival extremely precarious for some groups, among them lepers. The part played by segregation seems to have been a minor one, because it was never complete.—[From abstract in *Urol. & Cutan. Rev.* **42** (1938) 683.]

HUIZENGA, L. S. Men of note in the history of leprosy of the East. Chinese Med. Jour. **53** (1938) 335-346.

This rather discursive note refers first to Egypt, specifically to the Ebers and Smith papyri and to certain individuals not connected with the subject of the title. Turning to the Far East, reference is made to the passage in the Analects of Confucius which is assumed to signify the occurrence of leprosy in his pupil Pai Niu, "the first leper described in Chinese history." Three

historical Chinese physicians are recalled: Hua T'o, one of the deified ancient physicians; Chang Chung-Ching, who lived in the 2nd century A.D. and is spoken of as the Chinese Hippocrates, and who the records indicate treated leprosy; and Sun Szu-miao, who wrote the *Chien Chin Fang* (Thousand Gold Remedies) in which a chapter is devoted to the disease, from which interesting passages are quoted. The (supposed) leper king of Angkor is referred to, and the earlier men whose Christian influence was felt in the East—Francis Xavier and, 300 years later, William Carey, who about 1812 built in Calcutta the first leper hospital in India. —H. W. W.

OBERDOERFFER, M. J. Der aussätzige König von Angkor Tom. [The leper king of Angkor Tom.] Med. Welt (1939) 1101.

The author confirms Jeanselme's early statement, that the mutilations of the well known statue of the leper king at Angkor cannot possibly be intended to represent leprosy, but are due to external damage. He found, however, in one of the bas-reliefs in Angkor Tom the picture of a king with typical claw hands and toe-lesions, who is undergoing massage. The legends told about the leper king do, therefore, appear to have a concrete background, though the impressive statue of the leper king shown to the tourist has nothing to do with leprosy. —KLINGMÜLLER

[BASUTOLAND] Annual Medical and Sanitary Report, 1937 [H. W. Dyke]. Appendix IV. pp. 42-46, Annual Report on the Leper Settlement at Botsabelo, Basutoland, for the Year Ended 31st December, 1937 [R. C. Germond].

At the end of the year there were 669 patients, a decrease of 15 from the previous year in spite of a number of admissions resulting from surveys which had been made. Among the 88 admissions, the disease in 43 cases (49%) was of not more than 12 months' duration, a high proportion of early cases. Between 1929 and 1936 the proportion of admissions within 12 months of the onset of the disease rose from 37 to 52%. Of special interest is the unusually high figure for the average age at the time of development of symptoms, namely, 36.7 years; this figure has remained almost constant for seven years. The admissions of children up to 16 years remain at about 15%. Intradermal injections of chaulmoogra esters constitute the routine treatment, and 71 patients were discharged during the year, their disease having been arrested. Contentment of the inmates has been successfully fostered by social amenities.—[From abstract in *Trop. Dis. Bull.* **36** (1939) 234.]

[HONG KONG] Report of the Director of Medical Services for the year 1938.

Two important steps were taken regarding leprosy during the year. (1) Arrangements were made to give financial aid to the Catholic mission at Sheklung, in Chinese territory, which undertook to build accommodations for 200 more patients, that number to be increased later to 400. The lepers will be maintained at Sheklung at the expense of the Hong Kong government. (2) The government acquired the former Tung Wah Smallpox Hospital, a step which, it is hoped, will make it possible to impose some form of discipline on the lepers. It was also arranged that convicted lepers should serve their term of imprisonment in a special building to be erected in the precincts of the Hong Kong prison. No definite figures regarding the incidence of leprosy among the inhabitants of Hong Kong are yet available. It is

quite certain that a high percentage of the lepers now in the settlement contracted the disease elsewhere. A tabulation of hospitalized cases shows 20 as discharged, 91 discharged at their own request, 17 dead, 72 transferred to Sheklung asylum, and 133 remaining at end of the year. —H. W. W.

[United States Public Health Service.] Report of the Surgeon General, for the Fiscal Year 1939. Government Printing Office, Washington, 1939.

In the section of this report that deals with leprosy it is stated that an analysis of certain data collected in the continental United States during the preceding year has not given significant results. The extreme slowness of the evolution of leprosy, not only in the individual patient but especially in the community, is impressive. In the most heavily infected smaller communities (population 30,000 or less) only one or two cases of leprosy are discovered annually, and even in the largest city in the south which, with a population of about half a million, constitutes perhaps the most important focus in the country, less than a dozen cases are discovered each year. It is believed that the reporting of such small numbers of new cases is due not to failure to recognize the disease but rather to the fact that few new cases have actually developed. If all cases could be disclosed at one time, probably several times the number now reported would be found, but very few new ones would come to light for several years thereafter. Infections acquired in the United States are extremely rare except in Florida, Louisiana, and Texas. *Hawaii:* Studies made at the Leprosy Investigation Station (Honolulu) have included: (1) Attempts to infect the white rat with human leprosy. Seventeen months after the inoculation of one series of animals there were noted in a few of them, at the site of subcutaneous inoculation, lesions which histologically resembled those of rat leprosy. A second group inoculated with material prepared from these lesions showed similar lesions after 6 to 7 months. (2) The territorial home for boys of leprous parents was abandoned during the year, after 30 years of existence. It was opened in May, 1908, when 35 boys were transferred from the Kalaupapa settlement where they had resided from birth until they had reached the ages of 2 to 5 years. Five of these boys were declared to be leprous within 5 years. A sixth boy, brought from the settlement a year later, was found to have symptoms after some 3 years. These 6 cases were removed from the home and after that, for a period of 17 years, no cases were detected there. At the end of this 17-year period a boy of 5 was removed from the home as an open case. This child had lived with his leprous mother for the first 13 months of his life. Within about 7 years after his removal, 11 additional cases developed among the residents. (3) Investigations on nutrition in rat leprosy were continued. Rats deficient in vitamin B_1 or in calcium were found to be much more susceptible than normal ones. However, when calcium-deficient rats were fed vitamin B_1 they were no more susceptible than the normals. The findings suggest a possible relation between calcium and vitamin B_1 metabolism, and that the increased susceptibility of the calcium-deficient rat was due to vitamin B_1 deficiency and not to calcium deficiency. For example, rats deficient in vitamin B_1, highly susceptible, were not deficient in calcium, whereas calcium-deficient rats were also deficient in vitamin B_1. Likewise, the amount of vitamin B_1 in the blood of rats deficient either in that vitamin or in calcium was found to be the same for both groups.

Estimation of the amount of calcium in the bones of rats deficient in vitamin B_1 showed the percentage of calcium to be the same as in normal rats. Calcium-deficient rats were apparently incapable of utilizing the vitamin B_1 available in the calcium-deficient diet. When additional vitamin B_1 was given to rats maintained on the calcium-deficient diet, they showed a greater gain in weight than rats on the same diet without the addition of vitamin B_1; and a third group of rats on the calcium-deficient diet, which were fed additional vitamin B_1 and additional calcium, showed a greater gain in weight than those which received the addition of vitamin B_1 only. —H. W. W.

DAVEY, T. F. Leprosy in South Eastern Nigeria. Report on a survey at Atiti Ama, Nkporo, Bende Division, Owerri Province. Lep. Rev. **9** (1938) 113-122.

This is a report on a leprosy survey of eight villages in southeastern Nigeria. Ten years previously the people adopted a system of segregating lepers in special villages about half a mile from neighboring ones, surrounded by a wall with a single entrance. The diet is mainly vegetarian. The survey revealed 65 cases in a population of 1,762 (3.7%). Most of these cases were slight, only 4 of them being lepromatous; of the others, 9 gave positive smears. Of the 41 patients in the leper village, on the other hand, 27 were lepromatous. It appeared that some of them had changed from neural after entering the village, perhaps because of the unfavorable conditions there. The total incidence, including the cases in this village, was 5.8%; the incidence among females (6.5%) was somewhat higher than among males (5.0%), the numbers being 69 and 37, respectively; this is said to be characteristic of the region. The most interesting feature of the population of the Atiti Ama village was that females outnumbered males, and infants were very numerous. Adults suffered most, 74% of the cases being between 20 and 40 years of age.—[From abstracts.]

INNES, J. R. Leprosy survey in the British Solomon Islands, Western Pacific. A summarized account of the work and results. Lep. Rev. **9** (1938) 122-128.

———Report of Leprosy Survey of the British Solomon Islands Protectorate. Suva, Fiji, 1938, 70 pp., with 9 maps, etc.

A systematic survey in which nearly one-quarter of the 94,000 people were examined is reported. The number of leprosy cases found was 221, or 1.02%, and the total was computed at 900. The incidence was heavier in the bush than in the coast areas, and the distribution was that of a small group or family disease, heaviest among the more primitive people. The neural type predominated. The diet is deficient. Malaria and yaws are prevalent and predispose to leprosy.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 882-883. See article on Malaita, THE JOURNAL **6** (1938) 501-513.]

OLMOS CASTRO, N. La lepra en Santiago del Estero. [Leprosy in Santiago del Estero.] Thesis. National University of the Litoral, Faculty of Medicine, Republic of Argentina. 103 pp., 13 illustrations.

The province of Santiago del Estero, situated in the central and northern parts of the republic, has an area of 145,670 sq. km. and a population of 525,320. The author has observed in this province, during a short period of time, seven cases of leprosy, four of which were authocthonous and three

imported; two of them were bacilliferous. He made a careful study of the orographic and climatologic characteristics of the province, as well as the unsatisfactory conditions under which the inhabitants live in this region, and gives a plan to be followed in an antileprosy campaign there.

—G. Basombrio

Brochieri, G. Su un caso di lepra autoctona in provincia di Roma. [An indigenous case of leprosy in Lazio, Roma Province.] Policlinico Sez. Prat. **45** (1938) 153-4, 157-8.

The case here reported was a lepromatous (mixed) one in a woman of 46 years, born at Ferentino, never out of Italy. Her husband, who had lived in California for the 4 years preceding their marriage 13 years ago, was healthy. There are a few cases, ten or so, in Lazio. Peasants emigrate, especially from the Province of Frosinone, to Latin-American states and are probably responsible for introducing the disease on their return. The patient had not, so far as is known, had any contact with such a person, but it is more than probable that there are unnoticed cases one of whom might be the source of infection in this instance.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 285.]

Doull, J. A. The importance of field studies of leprosy, with especial reference to the risk of household exposure. American Jour. Hyg. **29** (1939) 27-33.

The risk of infection of persons in contact with lepers in a familial focus has been calculated in this work by applying the rules employed in establishing life tables. The basic statistics were obtained in an inquiry made at Cordova, Cebu, in the Philippines. All of the families present in the community as of July 1, 1933, were studied, and all of the members of each family (present, or departed, or deceased) since the entry of the family into the community or the development of the family focus. Then the number of years of life of all these persons have been totalled, (*a*) taken together on the one hand, then on the other hand divided into (*b*) those exposed to infection in the family and (*c*) those not so exposed. For each of these three categories the number of cases of leprosy contracted during the period under consideration has been studied and the rates per thousand years of life calculated. The findings, for the entire population (*a*) are 154 cases, 116,655 years of life, or a rate of 1.3 cases per 1,000 years; for the families in which there has been a leper (*b*) 53 cases, 10,305 years of life, rate 5.1 per 1,000 years; for the other families (*c*) 101 cases, 106,350 years of life, rate 0.9 per 1,000 years. While two-thirds of the cases of leprosy were produced by other than family contacts, the rate is more than five times higher in the families where there had been leprosy than in the others. The distribution by age groups in the general population shows that the rate is highest in the 10-14 years group (4.1), next in the 15-19 group (3.2). However, the disease is contracted at an earlier age in the leprous families; the cases are 5.3 times as numerous for the 10-14 years group in these families than in the others, but only 2.8 times for the 20-29 group. Account has not been taken in this study—but without changing the general character of the results—of various factors which require certain corrections: differences in the degree of risk according to whether the case is open or closed, duration of contact with the leper, and age at which

the contact commenced.—[From abstract in *Bull. Inst. Pasteur* **38** (1940) 60-61.]

McCoy, G. W. Communicability of leprosy and application of control measures. Arch. Dermat. & Syph. **37** (1938) 169-174.

In this brief general discussion the transmission of the disease is first discussed. Racial susceptibility is regarded as doubtful. Transmission within the family is important, but natural predisposition and the predisposing influence of other diseases are questioned. The exact mode of transmission is uncertain. Regarding isolation measures of a rigorous nature, which have been most relied on, the author holds that "there is no real proof of the efficacy of segregation as a measure of public health," largely on account of the difficulty of finding early cases. There is no substantial evidence that the vigorous measures taken in the Philippines have reduced the number of lepers there. He would therefore be lenient in the release of patients with arrested manifestations.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 557-558.]

Cochrane, R. G. Recent advances in epidemiology, diagnosis and prevention of leprosy. Jour. Christ. Med. Assoc., India, Burma and Ceylon, (1939) July.

This is a review of the subjects mentioned, with special reference to the author's personal experience. *Epidemiology:* The age of onset of leprosy is more often before puberty than after. Regarding type, the importance of the "abortive lesions" is stressed. In institutions where neural cases are isolated they seldom become lepromatous. Many cases in children are not serious; in 54% of 61 observed for three years the lesions remained unaltered or retrogressed. In gauging the importance of the leprosy problem in any area, figures giving simply the gross incidence are of little value; information regarding the incidence in children and the type-incidence is needed. If the cases in a given region are chiefly neural, and if children do not seem to be infected, the disease is not spreading. The importance of intrafamilial contact is brought out, and also evidence which demonstrates the influence that contact has on the development of the more serious cases. If children with neural lesions are divided into two groups, (*a*) those with single and (*b*) those with multiple lesions, it is found that the incidence of intrafamilial contact in the second group is almost double that in the first one. Leprosy is most prevalent in regions of low protein and high carbohydrate diet. Administration of calcium, proteins and vitamin B complex has no influence in preventing the neural cases from becoming worse, but it may help the lepromatous cases to become negative. Wheat diet has been found to be useful in the relief of nerve pain. Mention is made of the higher incidence of the disease and the greater frequency of its more serious form in males. Racial differences are seen in the greater severity of the disease in Anglo-Indians than in Indians; in the latter the incidence of lepromatous lesions of the eye and the larynx at the Willingdon Settlement is 23% and 0.7%, respectively, in the former 68% and 21%. The idea of lowered resistance as a predisposing factor in leprosy needs modification, it is believed. *Diagnosis:* Regarding the three cardinal diagnostic signs (anesthesia, nerve enlargement and presence of acid-fast bacilli), attention is drawn to lesions of "incipient leprosy" in chil-

dren in which none of them is found. In such cases the diagnosis should not be made unless the lesions are multiple and there is a definite history of prolonged contact with an open case. *Prevention:* Emphasis is laid on the isolation of the infected case from healthy members of the community, especially the children.—[From abstract in *Lep. in India* **12** (1940) 31.]

AYKROYD, W. R. AND KRISHNAN, B. G. A diet survey of families with leprosy. Indian Jour. Med. Res. **26** (1939) 897-900.

Recently there has been speculation regarding the possible relation of leprosy and malnutrition, it being advanced as an example that in India the disease is considerably more common in Madras and Bengal, where rice is the staple cereal, than in North India where the dietary is based on whole meal and much milk is consumed. The authors point out that, although the association of leprosy with poverty has long been recognized, few scientific investigations designed to throw light on the problem have so far been undertaken, and that the factors underlying the epidemiology of leprosy are still obscure. In Saidapet, a suburb of Madras with high leprosy endemicity, a house-to-house leprosy survey (Cochrane) has revealed an incidence of about 5%. The authors have collaborated in a diet survey in this area of 14 families (83 people) chosen more or less at random. In all families but one cases of leprosy were found, with 7 among the 41 adults examined and 18 definite and 6 suspected cases among 39 children, giving an incidence of 35%. In the worst-fed family in the group, with a mean calory intake of only 955 per day, 5 of the 6 individuals showed signs of leprosy. In another family, with a daily calory intake of only 1,300, 7 out of 11 examined were leprous. No conclusions are drawn, however, with regard to the role of malnutrition in leprosy; all that has been shown is that a group with a high leprosy incidence consumed a very deficient diet. Further investigations in such areas are necessary.—[From abstract in *Jour. Trop. Med. & Hyg.* **43** (1940) 6.]

TORRES, O. Prophylaxia da lepra. [Leprosy control.] Bahia med. **8** (1937) 84-88.

The writer insists upon various suggestions that he has made in previous reports concerning the control of leprosy in the State of Bahia, Brazil. The most important features advocated are: creation of a leprosy clinic as an annex to the leprosarium, to treat closed and incipient cases; creation of a skin clinic in the capital to detect new cases; transformation of the leper hospital into a colony; making a leprosy survey in the capital and the interior. Special courses in leprology, and the foundation of private associations to cooperate in the control of leprosy, are held to be useful.

—H. C. DE SOUZA-ARAUJO

JEREMIAH, R. Infectivity of neural leprosy. Jour. Ceylon Br. British Med. Assoc. **36** (1939) 59-60.

The author questions if the present Ceylon policy of segregating cutaneous cases and treating neural ones in clinics will prove effective in controlling the spread of leprosy, because neural cases may sometimes become positive to examination for the lepra bacillus.—[Abstract from *Trop. Dis. Bull.* **36** (1939) 540.]

BARTHOLOMEUSZ, F. E. R. Segregation of neural leprosy. Jour. Ceylon Br. British Med. Assoc. **36** (1939) 61-62.

The author supports the contention of Jeremiah [see above], and holds that patients with active neural leprosy should be isolated in a special asylum for such cases.—[From abstract in *Trop. Dis. Bull.* **36** (1939) 540.]

DE SOUZA-ARAUJO, H. C. A importancia da cooperação privada na prophylaxia da lepra. Resultados já obtidos no Brasil. [Value of the private cooperation in the control of leprosy; results in Brazil.] Rev. Med.-Cirurg. Brasil **45** (1937) 27-32.

The opinion is expressed that leprosy cannot be controlled in any country by the government alone; private cooperation is necessary. In all times and all countries such cooperation has been of great help. Mention is made of the activity of the Order of San Lazaro of Jerusalem, which in the Middle Ages extended its benefits to Europe; in England a branch worked for three or four centuries until Henry VIII confiscated the institutions, when it moved to Scotland and Ireland. Baldouin IV, the leper King of Jerusalem, went to Switzerland in 1174 to organize branches. After some centuries of lethargy the order is again active. The Catholic church, through St. Francis Xavier and co-workers, started work in Japan in 1549, and in the Philippines in 1578 through the Spanish Franciscans. Mention is made of the special organizations active today. In Brazil for centuries the work with lepers was a task of private institutions. First were the Candelaria Fraternity of Rio and the Santa Casa de Misericordia (charity hospitals) of various states; later a private association was founded by ladies in São Paulo, and ultimately there was developed the Federação das Sociedades de Assistencia aos Lazaros, which is doing excellent work all over the country. —AUTHOR'S ABSTRACT

VERGHESE, G. A scheme for anti-leprosy work in Orissa. The Medical and Public Health Department, Orissa, 1938.

This plan, approved by the provincial government and now being worked at, provides for survey, propaganda, registration and treatment of lepers and voluntary isolation of infectious cases. The Provincial Leprosy Relief Association has District Associations in three of the six districts and it is hoped that this organization will be extended and that leprosy clinic committees will be formed in local areas. Intensive propaganda is provided for, comprising wide distribution of suitable handbills and posters, the giving of popular lectures, and the cooperation of the local press. The limitations of treatment with regard to the control of the disease are recognized; treatment clinics will serve in part as centers for propaganda. At present there are 54 such clinics in the province, mostly attached to the hospitals or dispensaries maintained by the government or local bodies, and others could be opened in connection with the remaining dispensaries. The two leper asylums, at Cuttack and Puri, have very limited accommodations and it is financially impossible to multiply such institutions. It is therefore recommended that the infectious cases should be isolated (voluntarily) near their own villages and treated at the dispensaries, this scheme at first to be limited to the areas of high incidence. The local clinic committees would be responsible for registration of the lepers in their areas and for procuring land for the villages, sufficient for cultivation purposes, the patients thus isolated to be supported locally, with supplementary aid where necessary. The appointment of a provincial leprosy relief officer, who will be essentially a publicity officer, has been approved. Each district should also have a district leprosy officer, and

three compounders for working in highly infected villages distant from dispensaries. The annual expenditure for each district is estimated at Rs. 6,000, and the scheme would thus cost the government Rs. 36,000 a year in addition to the expense of the provincial officer. This experiment with isolation should be of far-reaching importance for the whole of India, where the ideal method of isolation of infectious cases in institutions would be impossible for all but a small fraction of the perhaps 250,000 such cases in the country; at present all of the existing institutions have, in total, accommodations for not more than about 14,000 lepers.—[From abstract in *Lep. in India* **11** (1939) 154-155.]

SANTRA, I. Leprosy in Orissa and its prevention. The Medical and Public Health Department, Orissa, 1938.

The author spent two and one-half months in touring the province of Orissa in connection with the working of the scheme of antileprosy work presented by Col. Verghese [see preceding abstract]. According to the census figures of 1931 (which give only an idea of the relative frequency of the disease in different parts of India) this province has the highest incidence, with 9,261 cases, or 111 per 100,000 of population. The local (*chowkidari*) figures for 5 out of 6 districts in 1936 record 11,594 cases, but sample surveys show that even these figures are grossly low; those for one area in the Puri district were 575 while a survey recorded 3,835. A moderate estimate, the author believes, would be arrived at by multiplying the chowkidari figures by five, which would give some 60,000 cases in the population of about 8,000,000. Mention is made of the "rapid spread" of leprosy in the province, but apparently that idea is based on the census figures; that of the 1931 census is 69% higher than that of 1921. This increase is doubtless due to increased accuracy of returns; the corresponding figures for the whole of India are 102,000 and 150,000, an increase of about 50%, the apparent increase being most marked in the provinces where most leprosy work has been done. Gross incidence figures cannot give a true idea of the severity of the problem in a region; it is essential to know about the age and type distribution of the cases. If the disease is spreading, a considerable number of cases is bound to be found in the younger age groups, and the severity of the problem is in proportion to the number of infectious cases. On these important points the report under review is silent.—[From abstract in *Lep. in India* **11** (1939) 156-157.]

RICHTER, W. Lepraforschung und Leprabekämpfung in Japan. [Leprosy research and control in Japan.] Dermat. Wchnschr. **108** (1939) 37.

A review of the status of leprosy investigations in Japan, with reference to clinical, histopathological, therapeutic and biological features, and experimental studies in animals. Such investigations can be made with promise of success only in countries in which the disease is widely distributed. Beside the bioclimatic and environmental factors, there is always a racial factor that is of fundamental importance with respect to the forms and course of the disease. The number of lepers in Japan is estimated at 30,000 to 40,000.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* **43** (1939) 277.]

SARDJITO, M., MOCHTAR, A. AND TJITROHOEPOJO, M. S. H. De voortgang van lepra "fieldwork" in het Regentschap Blora. [Continuation of lep-

rosy fieldwork in the Regency of Blora.] Geneesk. Tijdschr. Nederlandsch-Indië **78** (1938) 1822-1830.

A survey of the Regency of Blora revealed 330 cases in 129 of the total of 296 villages. The cases were classified into 192 neural, 63 lepromatous, and 75 mixed, of which 53 (16%) were in children under 15 years of age. None of these individuals lived more than 3 km. from one of the 29 simple polyclinics in the regency, and as bedridden patients were visited at their homes, systematic medical treatment was at the disposal of all. In tracing cases, inspection was directed especially to sufferers from any sort of skin disease, thus revealing lepers who otherwise would not have been found. Although all of the authorities cooperated it was found that the village police brought up few others than advanced cases. The institution of treatment, however, resulted in the voluntary presentation of the early cases, which it is hoped may at least be prevented from becoming advanced.—[From abstract in *Trop. Dis. Bull.* **36** (1939) 235-236.]

MAEDA, T. Leprosy nerve symptoms and climate theory. La Lepro **9** (1938) suppl. 83 (abstract).

The author makes a further analysis with regard to Hayashi's theory of the relation of climate and severity of the manifestations of leprosy, which he points out has been confirmed by Nagai with regard to alopecia and by Shionuma with regard to eye symptoms. The present inquiry is of the severity of nerve changes as seen in the Keiaien leprosarium among 187 patients from Japan proper, 146 from the southern archipelago, and 124 from Okinawa, near Formosa. A table gives the frequency of paralysis of the facialis, radialis, accessorius and peroneous nerves. The conclusion is drawn that the warmer the climate the lower the frequency ["grade" is the word actually used] of these conditions. —H. W. W.

KEIL, E. Lepra und Erbfaktoren. [Hereditary factors in leprosy.] Arch. Schiffs- u. Trop.-Hyg. **43** (1939) 95-102; *reprinted* (English translation) *in* Lep. Rev. **10** (1939) 163-171.

The germ, the soil, and heredity are the three factors of infection in leprosy. The author discusses the predisposing factor of heredity, laying stress on the importance in that connection of studying manifestations in twins. Seven pairs of them were found among about 950 patients. In three instances both of the twin partners were suffering from leprosy, in two instances only one of them was suffering, while in the remaining two neither was suffering. In one instance in which both of the twin partners were affected (both patients always bacteriologically negative) it was interesting to note that the anesthetic areas, thickening of ulnar nerve, wasting of the hand muscles and deformities of hands made their appearance at the same rate and at much the same time. The author believes that a study of twin pairs, the partners of which grow up separated from one another and under different surroundings, would be of particular value.—[From abstracts, mainly from *Lep. in India* **11** (1939) 146.]

GEHR, E. Ist die Reinigung des Brotgetreides von Kornradesamen mitbeteiligt am Erlöschen der mittelalterlichen Lepra? [Was the cleansing of bread-grain of corncockle seed connected with the extinction of leprosy in the Middle Ages?] Ztschr. Hyg. u. Infektionskr. **122** (1939) 238.

The author examines critically the well known and important question of why leprosy disappeared from mediaeval Europe, while remaining endemic in northern and southeastern Europe. Other epidemics, like plague, cannot have been the determining factor, because plague raged just as badly and at the same time in Iceland and Norway, where leprosy persisted. Molesworth's theory of natural selection finds no support for that and other reasons. Isolation in its mediaeval forms can scarcely have been the only factor. Nor could improvements in general sanitation and hygiene, though probably important, have sufficed to eradicate leprosy, because the very bad conditions in Germany during the Thirty Years War (17th century) did not bring a revival of the old endemic. This question is then studied in the light of Oberdoerffer's new theory that sapotoxin-containing food-plants make constitutionally disposed individuals susceptible to the infection by damaging the constitutionally weak adrenals. He finds that the plant concerned in Europe may have been the common corncockle, *Agrostemma githago*, which in mediaeval Europe and up to modern times in East Prussia, Canton Wallis, and eastern and northern Europe, forms a frequent constituent of badly cleaned corn. The time of probable disappearance of this toxic constituent in mediaeval Germany corresponds perfectly with the time of the disappearance of leprosy, which statement is elaborately supported by a multitude of indications. There is therefore a case for believing that Oberdoerffer's theory finds at least no contradiction in the puzzling disappearance of leprosy from mediaeval Europe. —KLINGMÜLLER

OBERDOERFFER, M. Histologische Untersuchungen an Lepraflecken in Nigeria. [Histological investigations of leprous macules in Nigeria.] Arch. Schiffs- u. Trop.-Hyg. **43** (1939) 403-409.

On the basis of examination of material from cases in Nigeria, the author confirms the well-known work of Wade, who holds that the tuberculoid condition is the basis of all classes of active skin lesions of neural leprosy (leprids). In the specimens from 11 cases, including flat macules poor in bacilli, as well as elevated lesions, tuberculoid changes in some degree were found in all, and it is concluded that "anesthetic, bacteriologically negative macular lesions in lepers in Nigeria are constantly found to be histologically tuberculoid." In three other cases, though no clinical peculiarity is indicated in the very brief histories, there were found badly-defined foci that led to the conclusion that they might be focal transitions to the lepromatous condition. They may be responsible for the seasonal bacteriologic variations in tuberculoid leprosy, discovered by the author and confirmed by Lowe. —KLINGMÜLLER

OBERDOERFFER, M. J. AND COLLIER, D. R. Bazillenreservoir und Hautläsion bei tuberkuloider Lepra. [Bacillus reservoir and skin lesion in tuberculoid leprosy.] Dermat. Wchnschr. **108** (1939) 357-361.

The authors examined histologically pieces of skin from macular lesions and earlobes of 9 patients of tuberculoid leprosy in the asylum at Chieng-Mai in Thailand (Siam), in which previous examination had shown bacilli in smears from the ear. Clinically none of these cases showed any change in the ears, or any anesthesia. They find that the bacillus-destroying tuberculoid tissue-reaction is much less active, and bacilli found more frequently, in the earlobe than in the other regions of the skin, as for example in lesions on the trunk; consequently this tissue is capable of serving as a bacterial

reservoir. In one case there was already a marked lepromatous infiltration there while the skin lesion remained tuberculoid. It is considered possible that slackening of the blood stream in the farther and frequently histamin-injured vessels of the lobule of the ear, as in the ectatic vascular bundles of the anterior nasal septum, is especially favorable for the settling of the bacilli. —KLINGMÜLLER

ITAKURA, T. Pathologic-histological studies on the teeth of the lepers, specially on its pulp-tissue. Part I. The clinical studies on teeth and other few things of the lepers. Trans. 10th Meet. Japanese Lep. Assoc. La Lepro **9** (1938) suppl. 121-122 (abstract).

Neither clinically nor in radiographic and microscopic examinations did 127 teeth extracted for ordinary reasons from patients in the government leprosarium in Formosa show anything different from conditions found in those from nonlepers. It is stated that the "leprous reddened tooth" seems rare, for not one has been encountered. Most of the 249 teeth taken from postmortem cases were normal, and none showed anything peculiar. A report of observations on the palate is also included. Bacilli were found in lepromatous lesions of that structure, but also in some instances when the tissue seemed normal. Sensitivity was usually normal, but in some patients there was total anesthesia. Betel chewing by lepers is also discussed, with nothing of particular interest. —H. W. W.

INABA, T. Ueber die histopathologischen und bakteriologischen Untersuchungen der Plazenta bei Leprösen. [A histological and bacteriological investigation of the placenta.] La Lepro **9** (1938) suppl. 111 (abstract).

In a study of 13 placentas from patients with nodular leprosy, bacilli were found in 5. They were typically arranged but most of them showed granular degeneration. They occurred chiefly in the hyalin of the chorion (Chorionzotten) groups, or the decidual portion; also in the syncytial cells, the Langhans cell-layer and in cells in the blood spaces; they were more numerous on the maternal side than the fetal. Histologically no leprous changes were found. It is thus to be recognized that the placenta is a portal of entry for the bacillus and therefore that placental infection is not to be denied, but in general it is rare.—[From author's summary.]

INABA, T. Beiträge zur Kenntnis der pathologischen Veränderungen der Hodenlepra, insbesonders über die Russel'schen Körperchen. [On the pathological changes in the testis, especially regarding Russell's bodies.] La Lepro **9** (1938) suppl. 113 (abstract).

Russell's bodies were found in the testicular tissue in all specimens from nodular leprosy studied, but not in the other forms of the disease or in non-leprous cases. They occur mostly in the older granulation tissue, partly intracellular but mostly extracellular, singly or in groups.—[From author's abstract.]

HAYASHI, Y. AND HASEGAWA, K. Studies on the brain-weight of lepers. La Lepro **9** (1938) suppl. 115 (abstract).

Over a period of many years the authors have made a study of the brain weights of patients at the autopsy table in the Zensei hospital. In males the weights averaged 1,325 gms., in females 1,208 gms.; these are less

than in normal people by 50 and 30 gms., respectively. Weight was generally less in nodular cases than in macular or neural, and there was a close correlation with the duration of the disease and the age at which onset occurred. —[From abstract.]

HUIZENGA, L. S. AND DALE, C. L. Hair and leprosy. Jour. Clin. Med. (Shanghai) **5** (1940) 20-24.

The question of hair affection in leprosy is traced from early times, referring to Jewish and then Chinese history. From the earliest days of Chinese medical lore the doctors saw a relationship between the hair and leprosy in various kinds of the disease; Chao, 610 A.D., speaks of eleven varieties, and in about one-half of them definite changes of the hair have been observed. Reviewing cases from the clinical aspect, the authors point out that in the cutaneous type, especially, the hair enters as a constant diagnostic factor. Of the 100 cases considered, the eyebrows were affected in 83%, the axilla in 30%, the pubes in 15% and the scalp in 10%. Biopsy specimens were taken from the scalp in 20 cases, and it was found that even those not showing clinical symptoms did show mild pathological changes of the scalp. —AUTHORS' ABSTRACT

YAMASHITA, K. Ueber den Einfluss von Jod auf das Blutbild der Lepra. [The influence of iodine on the blood picture in leprosy.] Trans. 11th Meet., Japanese Lep. Assoc. La Lepro **9** (1938) suppl. 90 (abstract).

Blood examinations were made to determine the effects of sodium iodide given intravenously. Erythrocytes and hemoglobin were lowered, there was acceleration of red-cell sedimentation, a marked increase of leucocytes, and moderate nuclear shift to the left. These changes reached their maximum in 4-5 hours after the injection and for the most part had disappeared after 24 hours. The clinical iodine reaction occurred much later than the hematological reaction.—[From abstract.]

HASEGAWA, K. Ueber die Blutgruppen bei Leprakranken in Japan. II. Mitteilung. [The blood groups of leprosy patients in Japan.] La Lepro **9** (1938) suppl. 1-2 (abstract).

This matter has been investigated in 902 patients, 597 males and 305 females. The principal findings are that there is no particular difference between these persons and healthy Japanese, and no sex influence. The form of the disease, prognosis and distribution ratio of the A B O system show no close relation with the diversity of the M N system of blood grouping. —[From translation of abstract.]

BARUA, K. C. A new method of examining the blood in leprosy. Indian Med. Jour. **32** (1938) 512.

This note is merely a restatement of the claims of Loewenstein that leprosy bacilli circulate in the blood stream long before they produce skin lesions and can be demonstrated by staining or by culture. In the former method venous blood is taken aseptically, dehemoglobinized with distilled water and centrifuged two or three times until clear; bacilli are found in the sediment. This sediment may be treated for ten minutes with 15% sulphuric acid to destroy other organisms (except tubercle bacilli), washed and centrifuged rapidly with normal saline, and planted on Loewenstein's fish medium; growth is supposed to occur in from 6 to 9 months. —H. W. W.

DE SOUZA LIMA, L. Classificação das leprides. [Classification of the leprids.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 63-69.

To establish a morphological classification of the leprids, the author points out, it is necessary first to consider the state of activity, real or potential, or of inactivity. From this point of view he divides these lesions into three classes: (*a*) in evolution, either progressive or regressive, (*b*) latent, or quiescent, and (*c*) stationary, or residual; these he discusses individually. His morphological classification comprises five groups: (1) primary achromic leprids, without erythema or infiltration; (2) simple erythematous leprids, with erythema but without clinically evident infiltration; (3) tuberculoid leprids, with erythema and slight or marked infiltration; (4) erythemato-hypochromic leprids, with erythema and hypochromia of variable degree, with or without infiltration, constituting a transitional phase; and (5) residual leprids, without erythema or infiltration, constituting the final result of regressive evolution. —H. W. W.

MAURANO, F. Lepra cutanea difusa. (Nota preliminar.) [Diffuse cutaneous leprosy (preliminary note).] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 49-62.

It appears that the criteria for the determination of the "diffuse" form of lepromatous leprosy is primarily diffusion of the bacillus, and secondly the relatively inapparent lesions. Out-ranking these, author asserts, is the possibility of the existence of a bacillemia. Subordination of the bacteriological criterion to the histological one leads to a characterization of this form that is more important than the relative indistinguishability of the lesions. The term "diffuse cutaneous leprosy" is only a qualification, not referring to the typical elements of the disease, and the bacteriological and histological findings do not correspond to its typical morphology. This picture is met with principally in nodular cases, active or regressive, after the disappearance of the classical lesions in patients with or without lepra reaction, in combination with other manifestations (disturbances of sensation, etc.). Pure forms of it, without typical progressive elements, the author has observed in 4 cases, 3 of them children of which two had manifest congenital syphilis. The one adult showed only a generalized erythema over the body, with innumerable positive examinations. One specimen (from the hip) showed characteristic inflammatory changes, without specific features or bacilli, another (from the lumbar region) a diffuse lepromatous condition. Another interesting case also had a generalized erythema and no nodular lesions, with nearly all smears positive and with diffuse lepromatous structure in sections.—[From author's summary.]

AGUIAR PUPO, J. Das formas clinicas da lepra; modalidades invasoras e racionarias. [The clinical forms of leprosy; invasive and reactional modalities.] Rev. Brasileira Leprol. **7** (1939) 357-390.

This paper, the essential argument of which is set forth in a lengthy summary [with English and French translations] proposes a classification into three types, one of them tuberculoid, on a basis somewhat different from that proposed by other writers in South America in recent years. The earliest classification (Danielssen and Boeck, and Leloir) and that of the Manila conference, are characterized as anatomical; the latter, it is stated, "presents the serious drawback of a simplification that does not agree with the clinical facts," clinical or neurological [the author then exhibiting misunderstanding

of its basis]. Its modification by the Cairo conference is held to abandon partially the anatomical basis, but without due recognition of the clinical and immuno-histological individuality of the tuberculoid form, maintaining the imprecision of the neural type of the older system. Stress is then laid on the histopathological basis of classification of leprosy lesions into three kinds, lepromatous, banal and tuberculoid [as was actually established by Jadassohn]; and this basis is adopted to set up three types in the primary classification, as follows: (1) lepromatous, (2) simple inflammatory (noncharacteristic—unstable, a transitional phase the end of which depends upon the development of (*a*) an allergic tendency, such cases being pretuberculoid, or of (*b*) an anergic tendency, these cases being prelepromatous), and (3) tuberculoid. In the first of several schematic tabulations, of which one deals with the "clinical forms" in general, the above division is shown to be of the "original forms," besides which there are two other groups, namely, combined or transitional forms, and "polymorphous erythema" or lepra reaction. Five of the seven other tabulations set forth elaborate and comprehensive subdivisions of the three primary forms and the two other groups just mentioned; the seventh, based on the general clinical aspects, lists (*a*) the evolutive forms, (*b*) the "critical" forms, and (*c*) the invasive forms, of hematogenous dissemination. The last tabulation is of notations. —H. W. W.

LEHMANN, C. F. Leprosy; a review of some of its unusual features. Arch. Derm. & Syph. **37** (1938) 175-195.

The thesis of this paper is the confusion that occurs in diagnosis when bizarre manifestations, changes of kinds that in typical cases do not obscure the picture, assume a major rôle while classical signs are absent; and stress is laid on uncertainty when, though the clinical evidence may be convincing, bacilli cannot be found or the histological picture is not definite. "The means of early diagnosis are bacteriologic and histologic." On the other hand the citations and cases presented indicate difficulties that commonly arise in nonleprous areas due to lack of real familiarity with the disease; and when the paper broadens in scope, as it does, it affords an example of handicaps suffered by the practicing dermatologist who endeavors to glean an understanding of present day knowledge of leprosy from a limited number of current articles and a book that is not current. (In the joint discussion of this and another paper, the cases in Norwegian immigrants and their descendents in Minnesota are dealt with at some length, and mention is made of two cases in persons from South Carolina and Wisconsin, neither of whom ever was outside of the United States.) —H. W. W.

FIDANZA, E. P. Consideraciones sobre la roseola leprosa. [On roseola leprosa.] Semana Méd. **14** (1940) 806-809.

The author makes reference to an error of diagnosis committed by him 30 years before, when he mistook a case of roseola leprosa for roseola syphilitica. Nineteen years later he observed another patient with roseola which, because of its atypical characteristics, he at first thought to be leprous but which later proved to be syphilitic. Attention is called to the possible confusion of these conditions and the importance of precise diagnosis of each.
—G. BASOMBRIO

DUBOIS, A. AND RADNA, R. Incisions multiples de la peau dans le diagnostic bactérioscopique de la lèpre. Signification des bacilles acido-

résistants rencontrés. [Multiple incisions of the skin in the bacteriological diagnosis of leprosy; significance of the acid-fast bacilli encountered.] Ann. Soc. belge Méd. trop. **18** (1938) 547-552.

The authors report on findings in the examination of neural-type cases by the multiple-incision method as that is applied by Cochrane and others in India, who not only take multiple smears from actual lesions but also from several points of election on the face (the ear-lobes, the cheek prominences, the forehead above the eyebrows and the chin) regardless of whether or not they show lesions. He finds this method to have a slight advantage over that of examining only one or two macules, and a decided advantage over the examination of the nasal mucus and of gland-puncture material. Of 27 Na cases, one-third were found positive; and of 159 Ns and Nt cases, 52% were positive, or 49% of the 186. Of this total the nasal mucous was positive in 34%, while gland puncture gave 36% positives in 73 cases. Interestingly, of the 159 cases in which there were skin lesions, positive findings were obtained in apparently healthy skin areas in 71 instances (45%) while actual lesions were positive in only 51 (32%). Analyzing further the 83 positive cases, bacilli were found only in apparently healthy areas in 32 (39%), in lesions alone in only 12 (14%), and in both macular and nonmacular areas in 39 (47%). The value of the method, it is held, is somewhat diminished by the possibility of confusion with nonpathogenic bacilli, but these quite often differ morphologically from the leprosy bacillus. Actually, the diagnosis of beginning neural leprosy shou'd be based on the clinical findings and particularly on the appearance of the macules, the bacteriological examination being useful for the precise determination of the nature of the case. —H. W. W.

FERNANDEZ, J. M. M. Valor de la inyeccion subcutanea de leprolin en el diagnostico de ciertas formas de lepra. [Value of the subcutaneous injection of leprolin in the diagnosis of certain forms of leprosy.] Rev. Brasileira Leprol. **7** (1939) 85-90.

Subcutaneous injections of 1.0 or 1.5 cc. of leprolin have been made in cases of lepromatous and neural leprosy, lupus vulgaris, lupus erythematous, and artificial dermatitis. In lepromatous cases there was no reaction. Tuberculoid cases had, within 24 hours: (*a*) a general reaction consisting of rigor, fever and arthralgias; (*b*) a local reaction at the site of injection; and (*c*) a focal reaction, with erythema and congestion of every preexistent lesion. In cases of the other conditions mentioned there was, at the same time, moderate general and local reactions, but no change in the lesions. It is therefore suggested that such injections be used as a test to differentiate between tuberculoid leprosy and certain other dermatosis, particularly those of tuberculoid nature as Boeck's sarcoids.—[From author's summary.]

SCHUJMAN, S. Evolucion y pronostico de la lepra tuberculoide. (Estudo realizado en 100 casos vigilados de 2 a 10 años.) [Evolution and prognosis in tuberculoid leprosy; a study of 100 cases observed for from 2 to 10 years.] Rev. Brasileira Leprol. **7** (1939) 1-25.

The author states that he still does not know of a convincing report of the evolution of a tuberculoid case into a lepromatous one. The only published case, that of Lefrou and Querangel des Essarts, is one of tuberculoid lepra reaction instead of an actual transformation to the lepromatous

type. The lesions in tuberculoid reaction may easily be mistaken for lepromatous lesions, especially since they may be bacteriologically positive, but the distinction can be made by the Mitsuda skin test, which is always positive in tuberculoid cases (though sometimes a little slighter during the lepra reaction); but it is better done by continued observation of the case: a tuberculoid lepra reaction will subside in some months, while a lepromatous case will continue to progress. Of 100 cases that have been studied (40 for from 7 to 10 years and 20 others 4 to 7 years), none has become lepromatous, even under the most weakening conditions such as puberty, pregnancy and delivery, intoxications, starvation and associated diseases. Only two ways of evolution of this form of the diseases have been seen: improvement and cure (30 paroled cases, without treatment for 2 to 7 years) or persistence of the lesions, with or without reactions, through many years. Because of this immutability of tuberculoid leprosy the author believes that it is a special form of the disease, of strong specific resistence, an allergic type. As for the evolution of lepromatous cases to the tuberculoid form, he thinks it possible but has never observed an example of it.—[From author's summary.]

RABELLO, JR., DE SOUZA, A. AND ADJUNTO, A. Sur le syndrôme type Boeck-Schaumann de lèpre tuberculoide. [The Boeck-Schaumann syndrome of tuberculoid leprosy.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 233-235.

This is a further discussion of the senior author's view, special reference being made to a discussion of it in THE JOURNAL [5 (1937) 483-498 and 503-515] that the leprosy bacillus, like that of tuberculosis, can cause a general affection of sarcoid type, and that European cases of the Boeck-Schaumann syndrome in which the etiology cannot be established may be ascribed to the action of a "leproid" virus, perhaps the Hansen bacillus itself. It is insisted that tuberculoid leprosy is not confined to the skin and peripheral nerves but also affects the lymph nodes, lungs and skeleton. Certain observations of Boeck that are not related to leprosy are mentioned, and also certain ones of Unna, Jr., on tuberculoid leprosy with reference to changes in the lymph node. A detailed report of the cases that have been studied is promised. —H. W. W.

MARINO BECHELLI, L. AND DA SILVA GUIMARAES, J. O mal perfurante na lepra: estudo clínico. [Perforating ulcer; clinical study.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 207-218.

Among the 1,600 patients in the Cocais asylum-colony the authors found perforating ulcers in 411 patients, or 26%, an unusually high incidence. The lesions found by radiological examination included osteolysis, osteoperiostitis, osteoarthritis with ankylosis or destructive lesions and pathological fractures, which are discussed as being directly or indirectly dependent upon the perforating ulcers. On the feet the areas most commonly affected are, in order: under the 1st metatarsus, 1st anklebone, 5th, 2nd and 3rd metatarsus and the heel; in general they are located where pressure is greatest when walking. The condition is ascribed to a neural origin.—[From author's summary.]

MARINO BECHELLI, L. Considerações sobre um caso de polinevrite leprosa. [A case of leprotic polyneuritis.] Rev. Brasileira Leprol. **6** (1938) 179-189.

A man of 30 years who had shown signs of leprosy for 8 years, beginning as a neuritis. The condition of his nervous system is described in detail, with the motor and sensory changes. The following were involved: sciatics, popliteals, branches of the brachial plexus and the auricular nerve (cervical plexus). The pain at the onset was intense, and trophic disturbances were observed, muscular atrophy, deformities, edema, acrocyanosis, absence of reflexes. The diagnosis is discussed and the conclusion reached that all was leprotic in origin. There were no psychic disturbances.—[Abstract from *Trop. Dis. Bull.* **37** (1940) 41.]

MARINO BECHELLI, L. O comprometimento do ciático popliteo externo nos doentes de lepra: Estudo clínico. [Affection of the external popliteal sciatic nerve; clinical study.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 197-206.

The author here discusses the sensory, motor, trophic and sympathetic disturbances due to leprous affection of the external popliteal sciatic nerve. Sensory changes occur in this territory early in the disease. Motor changes consist of impossibility of flexing the foot upon the leg, of abduction, and of extension of the ankle bones; there is a scraping walk ("falling foot"), and abduction is imperfect. There is no direct correlation with the degree of thickening of the nerve. The trophic phenomena consist of amyotrophy and tendinous retraction. "Acrocyanosis," a cyanotic tint of the skin, is referred to as a disturbance connected with the sympathetic. The "pilomotor reflex," tested by applying a drop of ether on the lateral surface of the leg, was absent in all of 200 cases examined.—[From author's summary.]

SHIONUMA, E. On leprous changes in the cornea. La Lepro **9** (1938) suppl. 3-4 (abstract).

From examinations of the eyes of 599 cases of the cutaneous type in the Zensei hospital, it is concluded that eye symptoms appear earlier when the lesions of the face are infiltrations than when they are nodular. Leprotic keratitis is classified into five groups: pannus (43%), keratitis punctata superficialis (16%), keratitis parenchymatosa (16%), leproma corneae (0.9%), keratitis superficialis diffusa (0.7%). These changes are seen only in the cutaneous type. Another form of keratitis has been newly found by the author and named keratitis punctata superficialis prominentia leprosa. There is a small leprous infiltration of the cornea which perforates the Bowman's membrane, resulting in an elevation of corneal epithelium. Corneal opacity is difficult to overcome even when there is marked diminution of the leprotic lesions elsewhere. Chaulmoogra treatment may help to diminish the bacilli in the cornea but the leprous lipoid, which causes no disturbance in other organs, long affects its transparency. Bacilli first enter the corneal corpuscles, which are similar to the endo- or perithelium of blood vessels and apparently do not become foamy cells. That change is undergone by histiocytes that enter the lesions. A case has been observed of keratitis (due to lagophthalmos) in which that lesion changed into a leproma, with many bacilli, as the first indication of transformation from the neural to the cutaneous type.—[From author's abstract.]

SHIONUMA, E. On leprous change of corneal nerves in leprosy. La Lepro **9** (1938) suppl. 5-6 (abstract).

In this study 11 eyes of seven cutaneous cases (5 with leprous pannus, 4 with pannus and keratitis punctata superficialis leprosa, and 2 with keratitis parenchymatosa), 2 of one neural case, and 2 of one macular case were examined microscopically. Technique: formalin fixation, Ishizu's modification of Cajal's silver impregnation method for nerves, and the Ziehl-Neelsen method for bacilli. In intact or slightly infiltrated parts of the cornea a majority of the nerves are normal. With marked infiltration intact fibers are seldom seen; there are various grades of degeneration of the axis-cylinder. Bacilli were found both in and between axis cylinders; sometimes round, spindle-shaped or cylindrical masses of them were seen in nerve fibers, and intact fibers often contain bacilli without leprous infiltration in the neighborhood. Such changes are not seen in neural and macular cases, though in keratitis due to lagophthalmos there is destruction of nerves in the opacity and regeneration of them nearby. Since there are no blood vessels in the cornea, the nerves must play the main rôle in the invasion by bacilli.—[From author's abstract.]

SHIONUMA, E. Etiology of eye leprosy. La Lepro **9** (1938) suppl. 7-8 (abstract).

The endogenous and ectogenous theories of eye involvement have been discussed ever since Bull and Hansen advanced the latter one in 1873. The author has examined microscopically ten clinically normal eyes (and also the surrounding tissues, such as the eyelid and lacrimal gland) of cutaneous cases to find an initial focus. In two instances initial infiltrations were found in the Schlemm's canal and its neighborhood. In eight, an infiltration began in the capillary loops of the iris and ciliary body, and in the margin of the cornea where these loops form a ring, coming from the anterior ciliary vessels. While bacilli entered the conjunctival sac from the eyelid, it was seldom apparent that they passed through the conjunctival or corneal epithelium. Bacilli were found [in the conjunctival sac] in nine of 55 cutaneous cases (16%), but in none of 40 neural cases. Passage of bacilli is: from an ulcer on the margin of eyelid; from Meibom's, Moll's and Krause's glands; from the goblet cells of the palpebral conjunctiva; through the bulbar conjunctiva and in its desquamated epithelium; and phagocytosed in leucocytes. The leprous eye changes, therefore, anticipate the appearance of bacilli in the conjunctival sac. These observations confirm the endogenous theory.—[From author's abstract].

DE SOUZA-ARAUJO, H. C. Estudo bio-estatistico de 975 casos de lepra internados no Hospital dos Lazaros do Rio de Janeiro. [Biostatistical analysis of 975 leprosy cases interned in the Hospital dos Lazaros of Rio de Janeiro.] Rev. Brasileira Leprol. **5** (1937) 319-339.

This report is based on the records available, which date from 1799 (those of the earlier period, from the founding of the hospital in 1741, being lacking), since which time to 1936 a total of 3,065 had been interned. Of the total of 2,090 that entered up to 1897, 60% were males; of the 975 subsequent patients 72% were males. The data on the latter group are analyzed in detail; only selected figures are given here. The racial distribution is: white, 76%; mixed, 15%; black, 9%—in contrast with which is a figure of only 39% for whites published in 1887. Patients of Brazilian birth were 81%, whereas figures published in 1887 and 1897 gave about 60%. Of the foreigners, Portuguese were most numerous, Italians next and Spanish third.

About one-quarter of the records showed the existence of other cases in the family. Ages of onset: 1-5 years, 1.3%; 6-10 years, 7.5%; 11-20 years, 30.1% (total, to 20 years, 39%); 21-35 years, 32%; 36-50 years, 19.3%; above 50 years, 9.8%. The data on types and locations of the first lesions are dealt with, as are those on duration of the disease and the actual ages of the patients at the time of recording and other matters. —H. C. DE SOUZA-ARAUJO

DE MOURA, A. M. Estudo bio-estatistico de 971 cases de lepra no Hospital Colonia S. Roque. [A biostatistical analysis of 971 cases of leprosy in the S. Roque colonial hospital (Paraná, Brazil).] Empreza Grafica Paranaense, Curityba, Paraná, 1938, 20 pp. (English summary).

This study is in the main statistical; at all events it deals with figures variously manipulated [comments an abstractor in *Tropical Diseases Bulletin*]. Whereas in a census made in 1919 (Souza-Araujo) 380 cases were recorded, the author's inquiry to the end of 1937 had brought that figure up to 1,378. Of the 971 in the hospital, 95% were whites, 4% mestizos and 1% Negroes; 70% were males and 30% females; 83% were over 20 years of age at the time of admission; 91% were born in Brazil. Of the non-Brazilians, 32 were Polish, 18 Italian, 15 Austrian, 6 German, 6 Ukranian, 3 Portuguese and 1 each were from France, Greece, Russia and Argentina. Residence in Brazil before the onset of symptoms varied from 4 to 68 years, with a mean of 31 years and 4½ months. As for the types of the cases, 81% were lepromatous or mixed and 19% neural, of which 14% were tuberculoid. The initial lesions were infiltrations in 28%, macules in 18%, nodules in 14% and sensory disturbances in 12%; they occurred on the face in 28%, the forehead in 11%, the hands in 11%, the feet in 9%, and legs in 8%. Of non-Brazilian patients, 64 in number, the ages ranged between 28 and 78 years, most of them being in the fifth decade.
—H. C. DE SOUZA-ARAUJO

ROTBERG, A. Casos clínicos. (*a*) Nodulos "brancos" de reação leprotica; (*b*) Eritrodermia em doente de lepra poupando as lesões maculosas; (*c*) Lesões leprosas ao longo das pregas articulares das palmas das mãos; (*d*) Lepra e dermatite de Duhring. [Clinical cases: (*a*) "white nodules" of lepra reaction; (*b*) erythroderma in a patient with exemption of the macular lesions; (*c*) tuberculoid reaction lesions along the articular lines of the palms; (*d*) Duhring's dermatitis.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 117-126.

(*a*) The "white nodule" of lepra reaction is an uncommon condition. After a short phase of erythema the nodules became very pale, light cream colored, with a thin peripheral ring of erythema. Pain in the lesions was more marked than normal, but evolution proceeded as usual, with complete return to normal through scaling and pigmentation. (*b*) A case with intense erythroderma due to plant poison; the macules were conspicuous by "negative" contrast. (*c*) In a case of tuberculoid reaction some of the elements were localized in the palms, with particular predilection for the articular lines. (*d*) Pustular Duhring's dermatitis had the same objective aspect in both normal and anesthetic areas, but the subjective signs were progressively weaker the higher the degree of anesthesia; the sense of burning disappeared first, then pruritus.—[From author's abstract.]

Souza Campos, N. and Rotberg, A. Casos clínicos. (*a*) Lepra vitiligoide de lesões extensivas; (*b*) Coexistencia de abcesso tuberculoso em doente de lepra. [Clinical cases: (*a*) vitiligoid leprosy with extensive lesions; (*b*) a tuberculous abscess in a leprous patient.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 137-142.

(*a*) The vitiliginous lesions were so extensive that the problem was to determine the healthy areas, normally pigmented and reacting to histamin. (*b*) In a clinically tuberculoid case a swelling developed in the right epitrochlear zone that simulated a nerve abscess but that proved to be a tuberculous abscess of the epitrochlear lymph node.—[From authors' summary.]

Marino Bechelli, L. Descamação psoriasiforme em máculas lepromatosas. Comentários sobre um caso. [Psoriasis-like desquamation in lepromatous macules; comments on a case.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 143-151.

A case report [well illustrated] of a peculiarly intense psoriasis-like desquamation of lepromatous lesions. The appearance was that of the reaction tuberculoid condition, and histologically there were, besides lepromatous infiltration, focal structures of radiating epithelioid cells, without giant cells. These features suggested the possibility of transformation of the disease from the lepromatous to the neural-tuberculoid type. That idea has been abandoned, however, because the Mitsuda reaction was negative. Two later biopsy specimens did not confirm the first one, and smears have been strongly positive.—[From author's summary.]

Gross, P. Leprosy of macular-anesthetic type combined with nodular tuberculoid lesions. Arch. Dermatol. & Syphilol. **34** (1936) 1088-1090.

A case report, patient born in Havana 52 years ago, resident in the United States for the past 21 years, the disturbance beginning about six months before with a widespread, nonpruritic eruption and a plantar ulcer which cleared up in two months under bismuth injections and topical applications but recurred. There were slightly scaly, faint salmon-red patches on the forehead and cheeks and slightly edematous, erythematous plaques on the trunk and thighs, some showing central clearing; a few lesions, especially on the upper extremities, presented a bluish-red, tumor-like infiltration. Ulnars considerably thickened. Nasal smear negative. Sections of a nodular lesion showed in the corium numerous strands and groups of mononuclear cells, many of which were vacuolated, with only scattered lymphocytes about the hair follicles and among the coil glands. Sections from a maculo-anesthetic area showed a diffuse chronic inflammatory reaction with proliferation of epithelioid cells forming nodules in the region of the hair follicles and about nerve bundles; large vacuolated cells also seen. Acid-fast bacilli found in both specimens. Histologic diagnosis: nodular and macular anesthetic leprosy. [In discussion Dr. M. B. Sulzberger raised the question if the histological picture was not that of a sarcoid form of leprosy; in that form, as in the sarcoid types of tuberculosis, bacilli are difficult to recover since they are, as a rule, either rapidly destroyed or altered by the allergic condition of the tissues (Jadassohn-Lewandowsky's law). The author himself was puzzled by the failure to find bacilli in the nose (no mention is made of smears from the skin lesions) and considered the case a combination of "nodular (tuberculoid?) lesions with macular anesthetic leprosy,"

supposedly a rare combination which shows that a "sharp differentiation does not occur in leprosy." The case illustrates difficulties that are encountered by dermatologists who see only occasional cases.] —H. W. W.

OBERDOERFFER, M. J. AND COLLIER, D. Lupus vulgaris bei Knotenlepra. [Lupus vulgaris in nodular leprosy.] Arch. Schiffs- u. Trop.-Hyg. **43** (1939) 170-172.

This is a report of the occurrence of clinically typical lupus vulgaris in an advanced case of nodular leprosy (L3) with marked pulmonary tuberculosis. The study included the clinical, bacteriological and histological features, the diagnosis being confirmed by guinea-pig inoculation. The lesion (illustrated by a photograph and photomicrograph) was an extensive, scarred one of the chest, believed by the authors to be probably the first case of this type of skin tuberculosis in leprosy. —KLINGMÜLLER

CHATTERJEE, M. L. Treatment of leprosy. Calcutta Med. Jour. **34** (1938) 413-426.

A systematic comparison of the usual treatments now employed, in the course of which are mentioned the complications of treatment, and the causes and means of avoiding incidents and failures of the treatment.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* **43** (1939) 282].

RAMOS, E SILVA, J. Tratamento da lepra. [Treatment of leprosy.] O Hospital (Rio de Janeiro) **4** (1938) 897-901.

The treatment of leprosy comprises measures of three orders: (*a*) dietohygienic, as in tuberculosis; (*b*) specific, by chaulmoogra preparations: purified oil, iodized (0.5%) or creosoted (4%) ethyl esters, or benzylic esters; (3) adjuvant, with calcium, antimony (for reactions) and ephedrine (for neuritis). Certain features of the disease call for local treatment by physical agents (carbon dioxide snow, diathermal coagulation, thermocautery, etc.) and by certain chemical agents (trichloracetic acid).—[From abstract in *An. Brasileiros Dermatol. e Sifilog.* **13** (1938) 173-174.]

SOUZA-ARAUJO, H. C. Traitement eclectique de la lèpre. [Eclectic treatment of leprosy.] Bruxelles Med. **19** (1938).

[This article is adequately covered by the author's summary of a similar one presented at the Cairo congress; see THE JOURNAL **6** (1938) 456.]

CLERCKX. Le traitement de la lèpre par le chaulmoograte de diéthylamine. [Treatment of leprosy by diethylamine chaulmoograte.] Ann. Soc. belge Méd. trop. **18** (1938) 373-376.

Brief notes are given of 15 patients treated with this preparation, doses of 0.5 to 2 cc. being given intravenously twice a week. The treatment is well tolerated, with exceptions, and is of special value because of its effect of alleviating pain. Quite regularly it causes improvement of the general condition. Extensive, chronic ulcerations heal completely, with good cicatrization; the results are really surprising. On the contrary, leprous macules tend rather to spread, and to recur in cases in which they have been brought once to disappear; the general condition, however, appears to become improved. In one case cramps and unconsciousness occurred after three injections.—[Mainly from abstract in *Arch. Schiffs- u. Trop.-Hyg.* **43** (1939) 283.]

LABERNADIE, V. AND ANDRE, Z. Injections intraveineuses d'huile et eosinophille. [Intravenous injections of oil and eosinophilia.] Bull. Soc. Path. exot. **31** (1938) 660-661.

The authors cite Engelbreth-Holm, who [as also Lombolt with him; THE JOURNAL **4** (1936) 402], observed an increase of eosinophiles, sometimes marked, in nonleprous patients who had been injected with chaulmoogra derivatives intravenously but not in those injected subcutaneously or intramuscularly. Similar changes were found in rabbits injected intravenously with cod-liver oil or liquid paraffin. Their own experience, with patients in French India (Pondicherry) treated by intravenous injections of neutralized whole chaulmoogra oil, is not in accord with those observations. Out of 99 patients, three-fourths of whom had received more than 25 injections, only 15 had eosinophile counts above 3%, the highest being 6% (3 cases). These findings are similar to those in the general run of the patients of the Pondicherry hospital and are related to intestinal parasitism. The absence of eosinophilia resulting from the injections is ascribed to the benignity of the oil used. [This title, without abstract, was submitted at the Cairo congress.] —H. W. W.

MARIE-SUZANNE. L'huile de calophyllum dans le traitement de la lèpre. [Treatment with oil of calophyllum.] Rev. Méd. et Hyg. Trop. **30** (1938) 271.

This brief note refers to the use of calophyllum, or dilo, oil by Dr. Neff in Fiji for the relief of the pains of neural leprosy, and adds that a source of supply of the oil, which will be tested, has been found in Indo-China. —[Abstract from *Trop. Dis. Bull.* **36** (1939) 695.]

FABRE, M. Le traitement de la lèpre par des injections associées d'huile de chaulmoogra et de bleu de méthylene. [Treatment of leprosy by combined chaulmoogra-methylene blue injections.] Rev. Méd. et Hyg. trop. **30** (1938) 249-252.

Although as a whole methylene blue has proved useful, it often has failed to fulfil expectations; in fact it has sometimes been discredited because it frequently gives rise to intolerance, and because it colors strongly the skin, especially the leprous lesions. Even the combination of chaulmoogra oil and methylene blue recommended by Montel and Marchoux the author would not employ, since because of their unreduced doses both medicines occasionally give rise to unpleasant side effects. He prefers to use full doses of normal neutralized chaulmoogra oil, reducing the dose of methylene blue to 2 to 10 cc. These drugs are emulsified and injected. The composition is adapted to the individual case, and handled according to the principles of chaulmoogra therapy. The results have been satisfying as regards both therapeutic activity and compatibility.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* **43** (1939) 283-284.]

BAGNOLI, N. [Methylene blue in leprosy.] Arch. italiano Dermatol. Sifil. e Venereol. **14** (1938).

Six cases were treated (two of them brothers), too few to permit arriving at any definite conclusions, but no worthwhile results were noted. For instance, a woman of 22 with nodular leprosy was given 17 injections of a 1% solution on alternate days, totaling 355 cc., with no effect whatever. A man of 53 with mixed leprosy was given 8 injections comprising a total of 160

cc., but the treatment had to be suspended because of exacerbation of pain and aggravation of the ulcers. Another case, a man of 72 with erythematous lesions, was given a total of 260 cc. but he also developed symptoms of intolerance and the treatment had to be discontinued. Altogether, therefore, the author cannot corroborate the good results reported by some writers.—[From abstract in *Urol. & Cutan. Rev.* **43** (1939) 698.]

VELDS, M. Phenolroodtherapie bij lepra. [Phenol-red therapy.] Geneesk. Tijdschr. Nederlandsch-Indië **79** (1939) 463-465.

In connection with published favorable results with phenolsulphonephthalein in two leprosy cases, this dye was given to sixteen patients at the Poelau si Tjanang leprosarium. No improvement resulted, however; on the contrary a slow increase of the disease was evident in 5 of the patients. This dye, like methylene blue, does not seem to be a specific drug for leprosy.—[From author's summary.]

TOMMASI, L. Il siero di Reenstierna nella cura della lebbra. [The serum of Reenstierna in the treatment of leprosy.] Riforma med. (Napoli) **55** (1939) 460.

At a recent meeting in Palermo the author discussed the value of the Reenstierna antiserum, which is prepared by inoculating sheep with new and old glycerin-bouillon cultures which contain acid-fast and nonacid-fast forms of a leprosy bacillus, and the toxins and disintegration products of the organisms. Three patients have been treated with this serum, with favorable effects on the ulcers but none on the further general evolution of the disease. —[From Foreign Letters, *Jour. American Med. Assoc.* **112** (1939) 2547-2548.]

DE GOLDFIEM, A. S. AND DE GOLDFIEM, J. S. La phytothérapie de la lèpre. [Phytotherapy of leprosy.] Rev. Méd. et Hyg. trop. **30** (1938) 272-282.

A survey is made of the sources of chaulmoogra oil, its preparation and its chemico-pharmacological properties. Beside this sovereign remedy the authors consider chlorophyll—the properties of which are given as antianemic, tonic for the heart and blood vessels, stimulant to blood-corpuscle formation, anti-infectious and sensitizing to light—to be valuable for internal and external treatment. In aqueous solution, 0.5 to 1 gm. of chlorophyll is injected into the leprous granulomata 2 or 3 times a week, alternating with the chaulmoogra oil therapy. A vegetable recipe given by Helguera as effective in skin inflammations, and *Orthosiphon staminues* as a diuretic, are discussed.—[From abstract in *Arch. Schiffs.- u. Trop.-Hyg.* **43** (1939) 283. This article would seem to be closely similar to that sent by J. S. de Goldfiem to the Cairo meeting; see THE JOURNAL **6** (1938) 458.]

VILLELA, G. G. Vitaminas e lepra. [Vitamins and leprosy.] Acta Med. **I** (1939) 499-503.

———Ueber die Beeinflussung der Lepra durch Vitamin B_1 und C (Aneurin und Ascorbinasäure.) [The effects on leprosy of vitamins B_1 and C—aneurin and ascorbic acid.] Arch. Schiffs.- u. Trop.-Hyg. **43** (1939) 127-129.

Fifteen cases, including both lepromatous and neural forms, were treated with crystallized vitamins B_1 and C. The neural cases treated with aneurin (1-2 mg., intramuscular) showed a slight increase in weight and general amel-

ioration of their complaints—cessation of pains, normal sleep, a feeling of well-being. Blood analysis showed a decrease of glucose and cholesterol with an increase of hemoglobin. The lepromatous cases, after injection of ascorbic acid, showed inconstant improvement (slight change of weight), no change of the blood glucose, and a lowering of cholestrin. The author considers that vitamin B_1 is beneficial in treatment, especially when there are neural symptoms and acute neuritis, and that vitamin C is also useful as an adjuvant in chaulmoogra treatment.—[From abstract in *An. Brasileiros Dermatol. e Sifilog.* **14** (1939) 156. The second reference would seem to be of the same article published in translation.]

HANSEN, P. AND BRAESTRUP, P. W. Vitamin C and skin diseases. Acta Derm.-Venereol. **20** (1939) 676-683.

Of interest in connection with certain aspects of leprosy study is the fact that the authors found the ascorbic acid content of the blood plasma in (*a*) cases of generalized skin diseases, to be materially lower than in (*b*) cases with localized skin affections, or in (*c*) control cases to whose diet 500 mg. of that substance had been added daily. Nevertheless, the administration of the vitamin had not the slightest therapeutic effect in any case, although it was given for several weeks and in some instances for several months. —H. W. W.

BOSE, D. N. Effects of treatment of trophic ulcer of the sole of the foot in leprosy by injections of hydnocarpus preparations. Lep. in India **10** (1938) 70.

The author reports cases, with photographs [poorly reproduced] before and after treatment, successfully treated by weekly local injections of creosoted hydnocarpus oil, as advised by Lowe and Chatterji.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 890.]

BETZ, H. Zur Behandlung lepröser Ulzera. [Treatment of leprous ulcers.] Arch. f. Schiffs.- u. Trop.-Hyg. **42** (1938) 468-470.

Mentioning recent investigations which have shown a specific influence of vitamins A and D upon the ectoderm, and experiences of other workers in the tropics in treatment of various ulcerative conditions, the author states that he has had favorable results in a leper asylum in Northern Australia in treating leprotic ulcers with cod liver oil. The preparation used was a proprietary ointment ("Desitin") with which he mixed either chaulmoogra oil or alepol. Leprotic ulcers rapidly become clean, with healthy granulations. Nasal ulcers benefit, and also trophic ulcers if superficial.—H. W. W.

MARTY, J. La sympathectomie péri-artérielle dans le traitement des ulcères de la lèpre nerveuse. [Periarterial sympathectomy for the ulcers of neural leprosy.] Bull. Soc. Path. exot. **31** (1938) 199-201.

The author records four cases of perforating ulcer of the foot in which healing took place shortly after femoral sympathectomy. Three have not been followed up for long, and the remaining case has developed ulceration of the other foot, so this treatment should be combined with medicinal methods.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 556-557.]

VALLE, S. Possibilidades da cirurgia plastica na lepra. [The possibilities of plastic surgery in leprosy]. Brasil-med. **53** (1939) 126-142.

Referring first to cases of abortive surgical cures that have been reported, the author, an oculist, says that plastic surgery is a neglected measure which is of service in cases with repulsive nodular or diffuse infiltrative thickenings of the face. By careful extirpation of lepromas and infiltrations, or by partial and progressive decortication, the face may be cleaned, with improvement in the morale of the patient. The principal objectives are correction of deformities, even when chaulmoogra medication is no longer tolerated or is useless; and in aiding in intradermal chaulmoogra treatment by lessening the time required to obtain improvement and the amount of drug that must be used. Surgery is also useful to correct many advanced leprosy lesions of the eyes and to prevent ocular involvement, usually irremediable, which is most common and most serious when there are many disseminated foci of the disease in the face. Lagophthalmos, uni- or bilateral, a deformity of neural leprosy, can be corrected by an anterior symblepharon, associated or not with an ankyloblepharon. For surgical treatment the author prefers two types of cases: recently admitted nodular ones that have had no treatment, and old nodular or mixed ones after 8 or 10 years of ineffectual treatment by chaulmoogra. He is convinced that the use of surgery, galvanocautery, diathermo-coagulation and chemical reductors must be associated to the medicine treatment of leprosy, according to Souza-Araujo's "eclectic" method of treatment, and that surgery and physiotherapy give in a few months more benefit than chaulmoogra alone in 3 or 4 years. This paper is illustrated with 54 photographs of patients.

—H. C. DE SOUZA-ARAUJO

AMENDOLA, F. Contribuição a therapeutica das affeções oculares leproticas. [Therapeutics of leprotic ocular affections.] Rev. Brasileira Leprol. **5** (1937) Spec. No., pp. 233-238.

In 80 cases with acute eye affections with photophobia, pain and lacrymation, treatment by means of intravenous injection of a vaccine proved excellent as a nonspecific stimulating therapy. In early keratitis, subconjunctival injections of a solution of mercuric cyanide and sodium chloride in distilled water with addition of novocaine gave somewhat satisfying results. The progress of the affection is stopped, and in 3 of 20 patients there was partial disappearance of infiltrations. Operative procedures to correct lagophthalmos resulting from leprous orbicular paralysis are described.—[From abstract in *Arch. Schiffs- u. Trop.-Hyg.* **43** (1939) 285.]

UCHIDA, M. Ueber die Therapie der akuten leprosen Iridocyclitis bei gleichzeitiger Anwendung von Eigenblutserum und Salsogrelan. [The therapy of acute leprous iridocyclitis by the simultaneous use of specific blood serum and salsogrelan.] Trans. 10th Meet., Japanese Lep. Assoc. La Lepro **9** (1938) suppl. **71** (abstract).

Acute leprous iridocyclitis, extremely disturbing to the patient because of violent pains and decrease of the visual capacity, is very difficult to treat. Atropine used at an early stage has more or less effect, but there is useless dilatation of the pupil and danger of secondary glaucoma. On the basis of many years experience with homoserotherapy the author states that equally good results can be obtained without secondary effects, and believes that one should first try this method. Only in cases with continuous repeated attacks, and in which the symptoms are especially marked, has the

serum therapy no effect. Cases with pain, especially that which originated from the ciliary nerve—unbearable for the patient—can be relieved without exception by giving salsogrelan intravenously. The drug has some influence upon the inflammatory hyperemia, but when it is insufficient gratifying results are obtained by a combination of this remedy with the serum treatment.—[From abstract.]

ASANO, S. Die Therapie der leprösen Iriodocyclitis mit artfremden Eiweisskörpern. [Treatment of leprous iridocyclitis with foreign proteins.] Trans. 10th Meet., Japanese Lep. Assoc. La Lepro **9** (1938) suppl. 71-72 (abstract).

Twenty cases with leprous iridocyclitis, especially of the acute inflammatory form, were treated with injections of milk with definite alteration in 3 cases, improvement in 11, disappearance of symptoms in 4 and lessening of them in 1 other; in only 1 was there no effect.—[From abstract.]

LABERNADIE, V. AND GUICHARD, F. Au sujet de la neutralisation des huiles d'hydnocarpus en vue du traitement de la lèpre. (Conséquences chimiques.) [Neutralization of hydnocarpus oil for treatment of leprosy.] Rev. Méd. française d'Extréme-Orient **16** (1938) 120-122.

This is a technical paper in which the authors conclude that the neutralization of hydnocarpus oil by the procedure of Le Naour and Roubaud yields a product free from glycerine and containing little active glyceride.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 890.]

COLE, H. I. AND CARDOSO, H. T. A descoberta de novos acidos graxos ativos no oleo de chaulmoogra. (Oleo de *Hydnocarpus wightiana*). [The discovery of new active fatty acids in chaulmoogra (H. wightiana) oil.] Mem. Inst. Oswaldo Cruz **34** (1939) 437-439.

[This is a brief statement of findings which are dealt with in detail in the first of three articles by these authors which will be reprinted in an early issue.]

DE SOUZA-ARAUJO, H. C. Nota sobre a cultura de chaulmoogra Indiana no Brasil. [Note on cultivation of Indian chaulmoogra in Brazil.] Mem. Inst. Oswaldo Cruz **32** (1937) 29-35.

The first plants of Asiatic chaulmoogras (*Taraktogenos kurzii*, *Hydnocarpus castaneae*, *H. anthelmintica*, *H. wightiana* and *Gynocardia odorata*) were received in 1922 from the U.S. Department of Agriculture. Those of *T. kurzii* were planted by Rolfs at the School of Agriculture of Viçosa, Minas Geraes. In 1924 small trees of various species were sent by the author to the Lazaropolis do Prata, Pará. In 1927 he planted at the Instituto Oswaldo Cruz seeds of *H. wightiana* brought from Calcutta; these did not germinate, but in 1929 others were procured that did germinate, and small trees were distributed all over the country. In 1932 some of the 42 *T. kurzii* trees at Viçoza, then 7 years old, produced fruits. Each fruit contained from 10 to 15 seeds and each seed weighed 3 grams. Seeds obtained from the crop of 1933 were planted in May and germinated in November, producing 250 small trees; best results were obtained in sandy soil. The period between blossoming and ripening of the fruits was 18 months. At that time there were numerous trees of *Oncoba spinosa* and *O. echinata* in Viçoza, covered with flowers.

H. wightiana in Rio de Janeiro fruited within 6 to 7 years. Oils from the *T. kurzii* and *H. wightiana* seeds proved to be identical with Asiatic oils.
—AUTHOR'S ABSTRACT

MENDES, E. AND CERQUEIRA, G. Lepromina. Causas modificadoras das reacções cutaneas relacionadas aos extractos de lepromas e as regiões inoculadas. [Modifying causes of the lepromin reaction in relation to the leproma extracts and the regions inoculated.] Ann. Paulista Med. Cir. **36** (1938) 510 (abstract).

The authors have analysed the lepromin reaction with respect to the factors inherent to this substance and its effect upon the individual. They explain the effects of dose injected. In sixteen nonleprous individuals tested quantitatively they found small differences in the reaction in different regions; in leprous individuals there could be seen very different results. These differences depend upon loss of reaction and upon a trophic disturbance.—[From abstract.]

ROTBERG, A. Considerações immunologicas em torno de um caso de reação leprótica tuberculoide. [Immunological considerations of a case of tuberculoid lepra reaction.] Rev. Brasileira Leprol. **6** (1938) Spec. No., pp. 127-135.

A report of a simple macular case with a few hypochromic lesions, in which the lepromin test gave a lesion of atypical, nonspecific aspect and evolution, like those often observed in nodular patients. .Eight months later a typical tuberculoid lepra reaction developed. The lepromin reaction then became strongly positive, and even the old little cicatricial lesion of the first test reacted and acquired the aspect of a strongly positive test. The author thinks that even the first test was positive, though entirely dissimilar to the real positive reactions as observed in definitely allergic cases, and suggests that atypical reactions would best be classed as "doubtful," without prognostic value.—[From author's summary.]

SCHUJMAN, S. Discordancia observada en los enfermos de lepra, entre la intradermoreaccion con lepromina (emulsion de lepromas) y antigenos de los supuestos cultivos de lepra. [Variations observed in leprous cases between the intradermal reaction with lepromin (emulsion of lepromas) and antigens from supposed cultures.] Rev. argentina Dermatosif. **23** (1939) 632-640.

The results of skin reactions induced by lepromin and by antigens from ten different cultures of acid-fast bacilli have been studied comparatively in 55 cases, 45 of L type and 10 of the Nt variety. Readings were made from the 8th to the 21st days. In the lepromatous cases there were clearly divergent results between the reactions to lepromin and to the other antigens; the former were constantly negative while the latter gave strongly positive results, consisting of persistent papules and even ulcerations. The ten antigens of cultivated organisms all gave similar results, which is regarded as indicating that none of them is a specific culture of the leprosy bacillus.—[From author's summary.]

DE ALMEIDA CUNHA, R. Serologia da lepra. [Serology of leprosy.] Ann. Fac. Odontol. e Pharm. Univ. Minas Geraes. (1937) 399-444 (reprint).

This is a lecture given in a course on leprosy and not a new contribution. More than one-half of it is devoted to the development of the Wassermann and more or less related reactions and their application in leprosy. Other tests, including that of Rubino, are dealt with briefly, the lepromin reaction somewhat less so though hardly adequately. —H. W. W.

CAPPELLI, E. La "pallidareazione" di Gaehtgens sui sieri dei lebbrosi. [Gaehtgens' "pallida reaction" practiced on the sera of lepers.] Gior. Batteriol. e Immunol. **22** (1939) 425-436 (English summary).

The author tested the reaction of leprous sera with Gaehtgens' spirochaetal antigen, both to prove its specificity and because the results might yield information about the mechanism and nature of the Wassermann reaction. He used the sera of 24 patients from the leprosarium attached to the dermosyphilopathic clinic of Genoa, and concluded that the specificity of the reaction is confirmed by the total lack of positive results with the sera of nonsyphilitic lepers, whereas the Wassermann and flocculation reactions (MKR II) gave a high percentage of positive results. Since the pallida reaction was positive (3+) in the single case of a syphilitic leper, it would seem to be useful for diagnosing that complication in leprosy. The humoral modifications in the sera of lepers observable by means of antigens consisting of extracts of healthy or syphilitic organs (positive Wassermann reaction) may be compared to the reactions of syphilitic sera—even excluding the possibility that specific leprous antibodies may be present—only in the nonspecific part, as the reaction remains negative when the antigen consists only of *Treponema pallidum.*—[From abstract in *Ann. d'Igiene* **49** (1939) 334-335.]

ACANFORA, G. Sulla reazione di Rubino. [The Rubino reaction.] Ann. d'Igiene **49** (1939) 152-159.

The Rubino reaction is based upon the speed of sedimentation of washed formolized sheep erythrocytes in the serum of the patient. Technique: defibrinated sheep blood is centrifuged, the plasma decanted, the cells washed several times with saline and diluted to the original volume, and 10 percent of formalin (40%) is added. Tubes (of 9-10 mm. internal diameter) are set up as follows:

	1	2	3	4	5	6
	cc.	cc.	cc.	cc.	cc.	cc.
Serum	0.5	0.25	0.1	0.5	0.25	0.1
Saline	0.3	0.55	0.7	0.3	0.55	0.7
Formolized cell suspension	0.2	0.2	0.2	—	—	—
Nonformolized suspension	—	—	—	0.2	0.2	0.2

Results are read after 15, 30, 45 and 60 minutes. The reaction is positive if the agglutino-sedimentation occurs only with the formolized cells or is definitely more intense than with the nonformolized cells. Of 23 cases of mixed leprosy, 22 were positive; in 14 cases of pulmonary tuberculosis, and in 65 of other diseases (malaria, leishmaniasis, amebiasis, etc.) all tests were negative. The author suggests a modification in which, instead of nonformolized cells, a control of definitely negative serum is used with the formolized cells.—[From abstract in *Trop. Dis. Bull.* **36** (1939) 691-692.]

HAYASHI, Y. Die Agglutinationsprobe des Lepraserums gegenüber saurefesten Bazillen verschiedener Stamme. [The agglutination reaction

with leprous sera against various strains of acid-fast bacilli.] Trans. 10th Meet., Japanese Lep. Assoc. La Lepro **9** (1938) suppl. 67-68 (abstract).

In an effort to distinguish between bacilli deriving from leprosy and other strains, the author employed 23 sera from leprosy cases of various kinds and 10 cultures from human leprosy, 1 from rat leprosy and 7 saprophytes. The sera from severe or progressive nodular cases sometimes gave positive reactions; those from neural cases, inactive nodular cases, and macular cases in which the lesions were undergoing resorption were negative to nearly all strains, whereas active macular cases were sometimes positive. As for the bacilli, some never gave reactions while others did so with many sera. No clear distinction between the leprosy bacilli and the others was to be seen.—[From abstract.]

[This author presented a second report on this subject at the next meeting, dealing with work with leprous emulsions and strains not used before, but the note concerning it (*La Lepro* **9** (1938) suppl. 89) gives no findings.]

CARVALHO LIMA, J. P. AND ARANTES, M. Cultura do bacilo da lepra. [Cultivation of the leprosy bacillus.] Rev. Brasileira Leprol. **7** (1939) 391-394.

The authors have attempted cultivation of the bacilli from 36 clinically and bacteriologically verified cases of leprosy in modified. Sauton's medium. In 30 instances there was an initial growth, occurring from the 4th to the 6th day. In 4 other cases growth occurred later. Twice the results were completely negative. Subcultures were secured in 3 cases during a period of 5 months. Macroscopically, the growths present pearl-colored masses with gray pigmentation and delicate veils on the surface. Successive microscopic examinations revealed different phases of the germ's growth, thus confirming the opinion of those who admit a cycle in the evolution of *Mycobacterium leprae*. This work is being continued.—[From authors' summary.]

MANALANG, J. The morphology of *Mycobacterium leprae*. Third report. Jour. Philippine Islands Med. Assoc. **19** (1939) 467-475.

This report is based on the routine bacteriological examinations made of 519 lesions in 257 cases on the Culion Negative Committee list but in which the disease had advanced. In recording the morphology of the microorganisms three types were considered: the solid, the segmented, and the granular. By comparing the results of the author's first and second reports with the present one, he cannot interpret the significance of the predominance of a given form of the organism in an advancing or a clearing lesion.
—J. O. NOLASCO

ADLER, S. AND ASHBEL, R. Experimental human leprosy in the hamster. Resistance of leprosy bacilli to drying and to chaulmoogra. [Demonstration.] Trans. Roy. Soc. Trop. Med. & Hyg. **32** (1938) 4-6.

This is a brief account of a demonstration of specimens to illustrate the resistance of lepra bacilli in thin sections of tissues to as long as seven days' desiccation over sulphuric acid, after which they could still infect hamsters.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 888.]

OBERDOERFFER, M. J. Uebertragung von Lepra auf sapotoxingefuetterte Affen. [Successful inoculation of leprosy in monkeys fed on sapotoxins.] Dermat. Wchnschr. **2** (1939) 1407-1411.

The author again presents his hypothesis that the use of foodplants which contain sapotoxins, like *Colocasia* in the tropics and *Agrostemma githago* in Europe, predisposes to infection with leprosy, supposedly by damage to the adrenal cortical system in individuals with constitutionally weak adrenals (extreme: status thymo-lymphaticus). He then describes his attempts to make monkeys susceptible by feeding them on foodplants which contain sapotoxins. In two normally fed monkeys there was only a temporary local reaction at the site of inoculation with leprotic material. In four monkeys fed on *Colocasia* there appeared, after three weeks, a local nodule at the site of inoculation which contained bacilli. In the following month there developed in all cases hairless, slightly infiltrated areas in the skin around the inoculation and at points separated from it by normal skin. In these secondary skin lesions there were at times a few acid-fast rods, followed by intervals in which none were found. Nine months after inoculation the lesions and the intermittent bacteriological findings still persisted, but now in two of them nasal smears showed on several occasions 20 to 30 bacilli; before that smears from the nose had always been negative. Histological examination of the skin lesions revealed nonspecific granulomatous tissue; Virchow cells could not be demonstrated, but the specimens were insufficiently fixed. The paper also contains a preliminary statement that, after feeding patients with lepromatous leprosy on raw adrenals for a short period, there seemed to be marked improvement. —KLINGMÜLLER

FITE, G. L. The staining of acid-fast bacilli in paraffin sections. American Jour. Path. **14** (1938) 491-507.

In this study the author analyzes the various factors concerned in staining bacilli. For fixation, the superiority of alcohol is emphasized though its harmful shrinkage effect on the tissues is recognized. If a potassium bichromate fixative is used the period of fixation must be brief and the tissue thoroughly washed; furthermore, the section should be treated for a few minutes with 0.25-1.0% potassium permanganate, followed by oxalic acid. For staining, "new fuchsin" (the trimethylated compound) is much better than the simpler compounds of ordinary basic fuchsin. The recommended formula is: new fuchsin 0.1 gm., phenol crystals 5 gm., methyl alcohol 10 cc., distilled water to make 100 cc. Staining may occur more rapidly if the sections are first treated with a solution of phenol crystals 5 gm., alcohol 10 cc. and water to make 100 cc. Time of staining varies widely with the fixative and temperature; prolonged staining at room temperature is preferred. When, in Zenker-fixed tissues, fuchsin fails to stain the bacilli they may sometimes still be demonstrated by Gram's stain, or by the acid-fast method using crystal violet, or by a fuchsin-formalin method, both of which are recorded. The author does not believe that there are Gram-positive but nonacid-fast forms of the bacilli; all acid-fast bacilli are Gram positive, and when they are destroyed in the tissue they lose both properties simultaneously. —H. W. W.

KUSABA, M. Biological and serological studies on the classification of acid-fast bacilli. Part I. Isolation and some biological natures of saprophitic acid-fast bacilli. La Lepro **9** (1938) suppl. 101-102 (abstract).

———Idem. Part II. Biological studies of saprophytic acid-fast bacteria. Ibid. 103 (abstract).

———Idem. Part III. Experiments on the pathogenicity of acid-fast bacilli to rabbits. Ibid. 117-118 (abstract).

———Idem. Part IV. On the classification of various acid-fast bacilli by agglutination and precipitation. Ibid. 119 (abstract).

These reports are of an extensive study of many strains of saprophytic acid-fast bacilli. The first report is of the cultivation of 63 such strains obtained, by the use of Ohtawara's modification of the medium recommended by Söhngen, Frey and Hagan, from water from pipes, wells, springs (hot and cold), baths, soil, dust, saliva, and various plants and insects. Their growth habits are given and the colors of the growths, which ranged from milky white to orange red. A study of the metabolic products, utilization of carbohydrates, etc., of 49 of them was made; no classification on such grounds was found possible. The same number of strains was utilized in a study of their pathogenicity in rabbits, together with 6 strains of tubercle bacilli of the three main types. Most of the strains produced more or less marked lesions, microscopically resembling early tuberculosis. In the serological work 6 strains of pathogenic and 129 of saprophytic organisms were tested by the precipitation reaction with 11 sera produced with certain of the saprophytes; "5 groups and 8 systems" were established. By agglutination tests with 27 sera, 85 of 127 strains were divided into "7 groups and 11 systems." Details are not given. —H. W. W.

Suwo, M., Itihara, T., Tada, K. and Takeuti, T. Studien über die Lepra. Ueber die säurefesten Bazillen in der Nasenhöhle. [Study of the acid-fast bacilli in the nasal cavity.] La Lepro **9** (1938) suppl. 125 (abstract).

Because saprophytic acid-fast bacilli from the outside, or from the sputum or saliva, may be found in the nasal cavity it is important that they be differentiated in the diagnosis of leprosy. From 20 out of 102 healthy children the authors found such bacilli, proved to be nonpathogenic to guinea-pigs. The colonies of the bacilli differed greatly among themselves, and also from those of tubercle bacilli. As a rule the acid- and alcohol-fastness was less than that of the latter type.—[From author's summary.]

Nishimura, S. Beiträge zur Studie der Rattenlepra. [Study of rat leprosy.] La Lepro **9** (1938) suppl. 77-78 (abstract).

Because organisms of different kinds have been cultivated from wild rats, the author investigated the matter in 7,800 such animals, 70 of which showed skin, muscle or lymph-node lesions that contained acid-fast bacilli. In 20 with skin lesions the condition was true rat leprosy, since white rats could be infected from them. On the other hand inoculations with material from 36 rats with only lymph gland lesions gave definite infection in only 9 instances; 14 were entirely negative and 13 caused only enlargement of lymph nodes, with bacilli but without lepromas; some of these may have been actually leprous but others were probably not—"pseudo-rat leprosy" due to other organisms. This conclusion was confirmed by culture work [see below].—[From author's abstract.]

Nishimura, S. Kultivierung von Tuberkelbazillen aus scheinbar leprös aussehenden Haus- und Wanderatten. [Cultivation of the tubercle bacillus

from apparently leprous house and wild rats.] La Lepro **9** (1938) suppl. 105-109 (abstract).

The author reports on cultivation work with material from apparently leprous wild rats [see preceding abstract]. From 14 such animals 18 strains were obtained, of which 4 were saprophytic while the other 14 proved to be the human tubercle bacillus. This organism is referred particularly to the causation of lesions which resemble the lymph-node type of rat leprosy and which are difficult to differentiate from that condition. It is probable that saprophytic acid-fasts may also cause a similar condition. Such lesions have doubtless often been mistaken for rat leprosy.—[From author's summary.]

URABE, K. On the virulence of B. leprae muris and on the influence of sexual-hormon against the development of rat-leprosy. Studies on rat-leprosy (VI). Trans. 11th Meet. Japanese Lep. Assoc., La Lepro **9** (1938) suppl. 92 (abstract).

A study of the pathogenicity of two strains of rat leprosy, one from Kumamoto and the other from Manchuria, has shown the former to be the more virulent. Experiments with both castrated and normal male rats, properly controlled, inoculated with rat leprosy and then treated with a sex hormone (such as "androstin" and "enormon") suggested that such treatment tends to accelerate the development of the infection.—[From abstract.]

COWDRY, E. V. AND RAVOLD, A. Rosettes in rat leprosy. Puerto Rico Jour. Publ. Health & Trop. Med. **14** (1938) 3-15.

The authors describe and illustrate by microphotographs the intracellular formation of rosette-shaped masses of lepra bacilli in rat leprosy, which differ from the faggot-like masses of Hansen's bacillus in globi in that the Stefansky bacilli are arranged radially. There may be a clear space around them, and separate rod-shaped bacilli may be seen in other parts of the same large multinucleated cell containing a rosette, which were stained by the Ziehl-Neelsen method.—[Abstract from *Trop. Dis. Bull.* **36** (1939) 241.]

GOMES, J. M. Mycobacterium de Stefanski. Pesquizas com o caroteno. [The mycobacterium of Stefanski; experiments with carotene.] Brasil-med. **53** (1939) 209-216 (English summary).

The author, with Fonseca Ribeiro, has experimented with yellow, fat-soluble vegetable pigments in the local treatment of ulcers of various kinds, including leprous lesions of the nasal mucosa in cases of leprosy. With this treatment the bacilli changed morphologically, diminished in numbers and sometimes disappeared, and Fonseca Ribeiro found that in vitro they underwent fragmentation. He identified the active substance as a carotinoid similar to provitamine A, with a probable formula on the order of $C_{40}H_{46}$—an isomer of carotene, apparently carotene-3-beta. The author now reports on the influence of this substance, used in a 1% colloided suspension, in experimental rat leprosy. Experiments: (*a*) inoculation of rat leproma emulsion or a bacteriological filtrate of the same (Seitz filter), simultaneously with a suspension of the carotene; and (*b*) similar inoculations after injection of the carotene. Results: (*a*) In the first week after the injection of the filtrate and carotene acid-resistant bacilli appeared, but later examinations were entirely negative. After the bacillus emulsion-carotene injections the bacilli spread widely in the organism in the first week, reaching the liver and the spleen, but subsequently they diminished in numbers and fewer organs were attacked

than usual. Animals killed after thirty days or so did not show the progression usually observed; the infection was limited and regressive. (*b*) When carotene was injected first there was no development of the filtrate virus, even with very virulent material. The results with the emulsion were similar to those of the first series. The author argues that if carotene has the property of increasing the body's resistence to the virus, its use is clearly indicated in the treatment of human leprosy, and he has begun a large-scale investigation in one of the state leprosaria. —H. W. W.