

## CURRENT LITERATURE

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

SUSSINI, M., PASO, J. R., AND PUENTE, J. J., [The antileprosy campaign in Argentina.] *Act. Trab. V. Cong. Nac. Med.*, (1935) 756.

The authors describe the organization of the antileprosy campaign in the Argentine Republic. A census was begun by sending circulars to all doctors; 52% replied, reporting 1,120 cases. There was then organized a search for cases by mobile commissions who visited the most infected zones—the provinces of Corrientes, Entre Rios, Santa Fé, Cordoba, San Luis and the states of Chaco, Formosa and Misiones. The investigations revealed 2,957 lepers, 614 of them in the city of Buenos Aires. The first official figure, published in 1926, was 724. The recorded cases are to be considered only an index of the incidence as many are not reported, or not diagnosed, or still in the incubation period. It is believed that the figure given should be doubled or trebled, though it must be taken as including the majority of serious cases. The littoral contains 88% of the cases, the central provinces 11%, the mountainous districts only 1%; the first-named region has the densest population and the biggest foreign immigrant element. More than 55% of the patients have advanced forms of the disease and, being potential sources of contagion, should be isolated. The authors have prepared a detailed scheme of prophylaxis, including the establishment of dispensaries and asylum-colonies, and mention various supplementary measures of familiar nature.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

GOMES, J. M. [The spread of leprosy in São Paulo.] *Ann. Med. Cir.* (1935) 343.

When the leprosaria of São Paulo are in complete working order the number of infected persons scattered over the state ought not to be very great. What should be considered is not so much the actual incidence of the disease as its spread, and special attention must be paid to those places which, by their intrinsic conditions, facilitate the development and diffusion of the bacillus and favor the development of the disease. The districts where the rate of spread has been highest are those of Sorocaba, Santos, Campinas, Ribeirao, Preto, Chavantes, Itapira, and it is possible that in recent years those districts will have shown a greater increase than formerly. It would be interesting to find out what effect epidemics of other diseases, for example malaria, may have had upon the aggravation of the leprosy problem, and such information should be of value in directing the course of the antileprosy campaign.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

DE SOUZA-ARAÚJO, H. C. Como se combate a lepra no Espírito Santo. [The antileprosy campaign in Espírito Santo.] *Rev. Comb. Lep.* 1 (1936) 5.

It is said that until 1921 the incidence of leprosy in the State of Espírito Santo, Brazil, was negligible, and between 1922 and 1927 a special office for control of leprosy

and venereal diseases recorded only 22 cases. In 1927, however, a general survey was started and more cases were found. The figures are: 1929, 133; 1930, 225; 1931, 340; 1932, 370; 1933, 401; 1934, 505; and 1935, 595—an incidence of about 1 per 1,000. The danger of drawing erroneous conclusions from such figures is pointed out; they could be taken as evidence of a serious epidemic of the disease, whereas the increase is simply due to active search for cases, the state being an endemic focus of unknown proportions. The survey is being done by travelling medical commissions, working together with which there are ten skin clinics and a model laboratory in the capital. The government of the state built a modern leprosarium, the Colonia Itanhenga, reserved for 350 open cases, connected with which is a preventorium for healthy children of leper parents, a farm, etc. Statistical and epidemiological data based on the censuses of 1934 and 1935 are given.

—[FROM AUTHOR'S ABSTRACT]

DE ALBUQUERQUE, A. F. R. Analyse epidemiologica de 1,110 fichas de leprosos da colonia "Santa Isabel," Minas Geraes. [Analysis of 1,110 cases at the Santa Isabel Colony, Minas Geraes.] *Brasil-Med.* 49 (1935) 1094-1099.

The author analyzes, from the aspects of age, sex, occupation, locality of origin, type and stage of disease, etc., the 1,110 patients interned at the Colony. The male: female ratio was 2.2 to 1. More than two-fifths (42%) acquired the infection between the ages of 21 and 35. One-half were field laborers, and one-quarter were domestic workers. The disease in Brazil is chiefly rural. Of 954 cases examined bacteriologically, 804 (78%) were positive. In nearly one-half, (47%) a history of leprous relatives was obtained, and the probability is that in a large proportion infection was acquired in the homes.—[From abstract in *Trop. Dis. Bull.* 33 (1936) 601.]

DINIZ, O. Lepra familiar em Minas Geraes. [Family leprosy in Minas Geraes.] *Arch. Saude Pub.* (1935) 93.

Diniz investigated the 525 patients in the Colonia Santa Isabel in 1932 to determine the probable sources of infection. He ascertained whether or not there were other cases in the families or in the homes of the lepers, the closeness of the relationship, the contagion between individuals of the same or opposite sex, and other data. It was found that 208 patients (39%) had probably been infected by leprous relatives with whom they lived (a proportion more or less similar to those given by various other authors); 192 (36%) were unaware of any probable source of contagion or would give no information; 85 (16%) had been in the habit of visiting leprous neighbors or, in some cases, had lived in houses formerly occupied by lepers; 19 (4%) had close contact from sharing rooms with lepers, playing the same clarinet, or having leprous tutors or washerwomen; 17 (3%) told only of residing near the homes of lepers. Of the 208 instances in which leprous relatives were acknowledged, these were of the same sex in 120 cases (58%), of the opposite sex in 79 cases (38%) and of both sexes in 8 instances (4%). The highest percentage of contagion was from father to son (15%), then from brother to brother (13%), and then from mother to daughter (10%), these being precisely the relatives who generally live in closest contact and are together most often. Husband infected wife in 5 cases, while the reverse occurred only once; the percentage of conjugal contagion was thus only 2.8. It is pointed out that there is urgent need of vigilance in the observation of the relatives of already interned cases, as there are sure to be among them other cases who should also be isolated for the complete destruction of the foci.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

DI PRIMIO, R. The Curupaity Hospital-Colony. *Arq. Rio Grand. Med.* (1935) 429.

The Curupaity "hospital-colony" (a term first used by its director, Dr. Theophilo de Almeida), is situated at Tangue, in Jacareagna in the Federal District, 30 km. from the center of the Federal Capital. It is situated on a hill, which accounts for the healthful climatic conditions.

The institution is divided into three sections for men, women and children, the last being temporarily housed in an annex to the women's quarters. There are 53 employees on the staff and 18 others attached to it which belong to the Department of Public Assistance of the Ministry of Education and Public Health. During the residence of the author at Curupaity there were 271 patients under treatment, 177 men, 79 women, 11 boys and 4 girls, though the capacity is 250; this excess is due to the anxiety of the lepers to get into hospital. The numbers of deserters from the hospital is significant: 49 (13%) in 1930; 33 (9%) in 1931; and 18 (5%) in 1932. Several of the regulations are noted. Visitors are allowed at certain times but admission of children under 15 years of age is prohibited. Patients considered non-infectious are sometimes allowed to leave the hospital.

Under very special conditions, and as a reward for regularity of treatment, good conduct, good character and other merits, the patients may be allowed to marry, but they are required to sign an obligation that all children they may have will be separated from them. In such cases the patients must, in their spare time, build themselves plain but picturesque bungalows in the married people's quarter. Materials are furnished by the administration, and help is rendered by their fellow patients. —[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

RUIZ, E. A. El problema de la lepra en el oriente peruano. [Leprosy in Eastern Peru.] *Ref. med.* 21 (1935) 565.

It appears that cases of leprosy have been known since 1900 in the zone of Bajo Ucayali of the Amazon region of Peru. According to Frei it is probable that the disease was imported from Brazil, as it had long been known to exist at Pará and Manaus, Brazilian ports with which Peru has heavy river traffic. Today the disease has spread along all the great rivers of the Amazon basin, especially in their lower parts and particularly in the Bajo Ucayali zone, from the mouth of the Pachitea to its confluence with the Marañon, where there are great numbers of native houses and small settlements. Of the inhabitants there 95 to 100% are infested with intestinal worms, and their food, clothing and houses are of the poorest description. In all the other low-lying river districts leprosy is found, but to a lesser extent. The rivers Napo and Putumayo, which have less traffic, appear to be free so far. The most frequent clinical form observed is the nodular one. The cases are generally sporadic, and one frequently finds in a large family a single leper who has had the disease for two or three years without manifest contagion having occurred. At present 150 patients are compulsorily isolated in the Asylum of San Pablo, some 100 kilometers south of Iquitos, to which they were transferred in 1926 from the suburbs of Iquitos. They live in 50 huts, employing themselves in domestic duties and agriculture, but they are not watched closely and may run away whenever they wish. Besides the asylum staff there is a special research officer for investigating suspected cases. The funds of the asylum amount to 3,800 soles per month, of which only a small proportion is available for food and treatment. Lately the laboratory of the Army Medical Service has been giving aid in diagnosis. Of 39 suspected cases examined, 21 showed

the bacillus. Leprosy in eastern Peru is a serious problem, as it goes on spreading slowly but persistently. A proper campaign against it should be begun. There is urgent need for a proper asylum-colony, which with strict observance of hygienic measures might quite well be located in the outskirts of Iquitos.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

HERNANDEZ, C. [The problem of leprosy in Honduras.] Thesis, 1935.

Hernandez reviews the problem of leprosy in a general way, and discusses particularly its significance and importance in Honduras. He concludes from his study of the subject, made in the General Hospital of Tagucigalpa and in the actual leprosy focus in the south of the country, that the disease has been proved to exist in Goascorán, Aceituno, Alianza, Amapala, and Nacaoma in the department of Valle, and in Pespire in the department of Choluteca; there is also information about another focus at Pueblos Nuevo in the department of Santa Barbara. The number of cases is not even approximately known, and there may possibly be other foci than that in the south. The problem is really a national one, and the necessary campaign ought to be conducted under the auspices of the public health department.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

OTEIZA Y SETIÉN, A. AND TIAN Y DEL RIO, F. R. El grave problema de la lepra en Cuba. [The problem of leprosy in Cuba.] *Vida Nueva* 35 (1935) 301-370.

This is a long article, half of it irrelevant to the title. The numbers of deaths from leprosy in Havana and elsewhere are given separately; the greatest number was in 1911, when 31 deaths occurred in the capital and 53 outside, or 9.5 per 100,000 inhabitants; in 1916 the figures were only 18 and 33 of 5.2 per 100,000, the lowest since 1910; since then the rates have been lower. In June, 1932, an inquiry was started in the dermatological division of the Mercedes Hospital and 23 cases were detected, 18 men and 5 women; 20 were of the nodular form and 3 of the nervous; 19 were Cubans, 4 were foreigners. The preponderance of the nodular type is shown also in the Rincón leprosarium records, 278 out of 387 (72%). The need for measures to control the disease is discussed and the clauses of a projected law are detailed; these are on the usual lines.—[From abstract in *Trop. Dis. Bull.* 32 (1935) 855.]

LOWE, J. Modern thought on leprosy and its bearing on mission work in India. *Lep. in India.* 8 (1936) 48.

The present leprosy situation in India is reviewed. The author discusses the great prevalence of the disease in India, the comparatively mild form seen in many cases, the relative immunity of adults compared with children, the importance of preventing and controlling the infection, and the difficulties of combating leprosy in India owing to adverse social and economical conditions. The problem in India is considered to be largely a social and economic one. In antileprosy work the leprosarium is of great importance and the work of the Mission to Lepers, which owns, aids, or administers most of the leprosaria, is of great value. It is advocated that as far as possible the institutions should use their accommodations for infectious cases. The importance of a high standard of work and of good staff and equipment is emphasized, and the part that missions in general and mission leprosy institutions in particular can play in encouraging the development of antileprosy work is discussed.

—[AUTHOR'S ABSTRACT]

CLEMENTS, F. W. A medical survey in Papua. Report of the first expedition by the School of Public Health and Tropical Medicine, Papua. *Med. Jour. Australia* 1 (1936) 451-463.

Except for the findings of a survey made by Breinl, in 1912-13, there has been little information concerning the diseases existing among the tribes in Eastern Papua. These are divided into the coastal, subcoastal, and mountain tribes. No leprosy was seen among the first and last groups (853 and 1,715 persons seen, respectively), but 7 cases were found among 2,612 persons of the subcoastal, or Mekeo, tribe examined (2.7 per 1,000). These were believed to be all of the obvious cases. Three of them were related to each other, the other four had no leprosy relatives. All were of the "chronic" type, none exhibiting skin lesions, a fact considered important with respect to the spread of the disease. The natives apply a form of segregation to the worst cases. —H. W. W.

BUITELAAR, L. Lepra onder de Sa'dan-Toradja's. [Leprosy among the Sa'dan-Toradjas.] *Geneesk. Tijdschr. v. Nederl.-Indië* 75 (1935) 1211-1222.

The author does not bring forward any new facts or theories, but simply records an investigation among the primitive Toradja people of the Island of Celebes, made to pave the way for setting up a leper hospital. The people concerned number about 200,000. Their food is rice with a sufficient vitamin content, green vegetables and fish, but very little meat; clothing, housing, sleeping and sanitary arrangements are of simple type. The author discovered 204 lepers in 19 districts with a population of about 160,000, but considers the real total at least three times this number, or about 3.5 per thousand. The age distribution was: 6-15 years 2%, 16-25 years 10%, 26-35 years 24%, and 36 years or over 64%. The type distribution, in percentages, was: skin leprosy 49, nerve leprosy 41, mixed 10. Bacteriological examination of 115 cutaneous and mixed cases gave positive findings in 101 cases; specifically the figures for nasal mucosa, exudative serum and thick blood drop were 80, 68 and 28%, respectively. The results of the same examinations in 79 cases of nerve leprosy were 23, 12 and 5%. The Toradja man is quite aware that infection occurs by personal contact, although he also believes in transmission by water. In some parts married persons desert one another upon the onset of the disease. Of 185 patients of marriageable age, 77 were married, 21 unmarried, 67 separated and 20 widowed. The question of contact was investigated in 194 cases, giving the figures 35, 27 and 38%, respectively, for contact with family members, strangers and no known person. Unexpectedly, infection was traceable with greater frequency to the father than to the mother. —[From abstracts, especially in *Trop. Dis. Bull.* 32 (1935) 857.]

DUNHAM, G. C. Leprosy in the Philippine Islands. *American Jour. Publ. Health* 26 (1936) 27-29.

This article is a summary of the report of the Leprosy Commission appointed in 1935 by the Governor-General after his veto of a bill passed by the legislature which would permit "positive" lepers being treated in their own homes by private physicians, and their release after a short "negative" period [*THE JOURNAL* 3 (1935) 389-442]. Culion Leper Colony, which is remote from centers of population, deals with nearly 7,000 out of 8,700 segregated lepers. About 300 a year are liberated on parole after becoming "negative," and about 50% of these relapse. Among the conclusions of the commission, the segregation of bacteriologically positive lepers is upheld as the basis of control; home segregation in the house is considered impracticable in the Philippines; group segregation of "positives" is the method of choice as giving the



best environment to the leper and the best protection to the public; regional colonies and regional treatment stations with leper hospitals for advanced cases are recommended, together with regional agricultural colonies. It is recommended that the pre-parole observation period be reduced from 12 months to 6, but adequate provisions should be made for following up and properly observing and treating the paroled patients. Adults may be regarded as practically immune, but children are especially susceptible. Children of leprous parents should be separated at birth (not after six months, as previously) and placed with nonleper relatives or in an institution.—[From abstract in *Med. Jour. Australia* 2 (1936) 235.]

RODRIGUEZ, J. Our leprosy problem in the Philippines. *Month. Bull. Bur. Health (Manila)* 16 (1936) 161.

This article consists of two sections of a memorandum presented to the Philippine Leprosy Commission [THE JOURNAL 3 (1935) 389-442]. Discussing the history of leprosy control, the author cites the beneficial effects of compulsory segregation in various places, including Memel in East Prussia, New Brunswick, etc., and for comparison the increase of the disease in St. Kitts and Crete, where segregation has not been enforced. He also mentions the increase of the disease in Roumania, South Africa and parts of Russia where home isolation is used. As a model and practical system he sees much in the practice in Norway, Iceland, Sweden and Finland, where the combined system of home isolation and institutional segregation is in vogue, but points out that national discipline and the work of the local health officers, and the small numbers of lepers in these countries, make that system possible and efficient. In China, Japan and India the magnitude of the problem is such that no one system, especially segregation alone, can be practicable and effective.

A short account of the segregation work in the Philippines is given, and the results obtained (1906 to 1933) are analyzed. From about 800 cases in isolation in 1906, the number increased to about 5,000 during 1917 to 1919. From 1919 to 1923 the numbers of patients gradually increased, following the introduction of present-day treatment. From 1923 to 1927 there was some diminution, but from 1928 to 1933 there was a sharp rise, which the author believes to be due to the establishment of regional treatment stations (additional to the Culion colony and the San Lazaro hospital in Manila) with consequent voluntary reporting of many early cases. In analyzing the figures the author points out two factors that affect the total number under segregation: (a) the number of new cases segregated; (b) number of deaths. [The release of cases that have become "negative" under treatment is not mentioned, though it obviously affects the numbers in segregation.] The numbers of deaths at Culion decreased from 1906 to 1933; at Cebu the numbers of new admissions have not increased during the last few years; it is concluded that the apparent increase of number of total segregated lepers in the Philippines is partly due to the decrease of deaths.

—M. B. LARA

EUBANAS, F. The public health aspect of the parole of negative lepers. *Month. Bull. Bu. Health (Manila)* 15 (1935) 57-65.

Eubanas discusses the conditional discharge of lepers who have become "negative." In recent years such discharges have been granted to large numbers of lepers in the Philippines, under the agreement that they would remain under observation for two years before being given their final discharge. He refers to several reports on the subject, including one by Rodriguez who reported that, of 595 from Cebu, 75% had not reappeared for observation, while from Manila, Chiyuto and Velasco reported

that of 738 cases only 420 (55%) had been adequately followed-up. Of these 420, 54% had remained quiescent and 46% had relapsed. He goes on to say that if the fact is taken into consideration that some 2,500 "negatives" have been discharged, and that three-quarters of them have probably had recurrences, it will be realized that a continuous stream of lepers has spread over the country, presumably or potentially infectious although bacteriologically negative, of the majority of whom nothing more was known. If the theory of Manalang is accepted that not only the "positive" leper but also the negatives are infectious, it will be seen that the discharge of negative cases produces a very grave problem as far as regards epidemiology and the transmission of the disease.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

LARA, C. B. The problem of the follow-up of "negative" lepers. *Month. Bull. Bu. Health (Manila)* 16 (1936) 39.

The follow-up of "negative" lepers in the Philippines deals with 3,500 paroled "negatives," 1,200 negatives still in segregation, 1,100 closed cases recorded by the skin clinics and treatment stations, the many children born of leper parents before and during segregation (particularly the former), and the contacts of all these classes of patients. On account of the insufficiency of funds, personnel and information of the situation, the present system has several defects; among them delay in paroling eligibles and failure to detect relapsed cases are the most serious. The author suggests provision of more funds, equipment and personnel specifically for such work, more frequent examination by the "Disposal Committee" of the negatives awaiting parole; a six-months pre-parole period instead of one year; assistance to paroled negatives in getting to the places of examination and treatment; and, among other things, employment of nurse-social workers to search for contacts.

—M. B. LARA

SAMSON, J. On the follow-up of the released negative leper. *Month. Bull. Bur. Health (Manila)* 16 (1936) 180.

The author discusses the work of the "Disposal Committee" (which is charged with the final examination and parole of segregated patients that have become negative under treatment in the leprosaria) done in 1935 in five of the provinces in the Philippines. He describes briefly the parole system, the sociological and other problems of the paroled negative leper, and the difficulties of follow-up work. A total of 1,347 such cases were registered for the provinces dealt with, but only 288 of them (21%) were examined; of these 22 (8%) were found to have become bacteriologically positive. The circumstances under which this kind of work is done limits its scope and permits many such relapsed cases to live at large in the healthy community. Paroled negatives should be examined every three to six months, and for this work he endorses the plan proposed by C. B. Lara.

—M. B. LARA

CHRISTIAN, E. B. A study of the transmission of leprosy in families. *Lep. in India* 7 (1935) 161.

The author reports a detailed investigation of 57 families in which one or both of the parents had leprosy. This investigation was made to study the factors influencing the transmission of the disease in such families. The following conclusions are drawn by the author: (a) cases which do not show *M. leprae* on clinical examination (i. e., negative, "neural" cases) do not transmit the disease; (b) positive cases transmit the disease, more than 90% of the children of such parents showing signs of it; (c) susceptibility appears to be inversely proportional

to age, young children showing a very high incidence, older children not so high an incidence, and adults a low incidence, conjugal infections being rare; (d) the incidence in children is about the same in males and females; (e) the disease tends to take a severer form in male children than in female children; (f) children of infectious fathers show almost as high an incidence as those of infectious mothers; (g) the "joint-family system" aids greatly the transmission of leprosy in families; (h) the employment of infectious leper servants is sometimes the cause of infection of children whose parents are healthy. —J. LOWE

BERNY, H. Quel est l'avenir des enfants nés de meres lépreuses? [The future of children born of leprosy mothers.] *Bull. Soc. Path. exot.* 29 (1936) 469.

The author's observations on 20 children born of leprosy mothers in French Guiana confirms the established rule that only separation from their mothers at birth will save them from infection. —ET. BURNET

LOWE, J. A study of macules of nerve leprosy with particular reference to the "tuberculoid" macules. *Lep. in India* 8 (1936) 97.

The use of the terms "tuberculoid" and "macule" in connection with the lesions of leprosy, the occurrence of tuberculoid changes in leprosy lesions, and the high incidence in Calcutta of lesions showing such changes are discussed. The clinical, pathological, histological and bacteriological features of the various types of macule seen in nerve leprosy are described and illustrated. It is pointed out that acid-fast bacilli can be found histologically in practically all macules that show signs of activity, and that macules show a marked tendency to spontaneous healing. The opinion is expressed that the various types of macules of nerve leprosy are merely different manifestations of an inflammatory process of tuberculoid nature, seen in different stages of activity and quiescence. The causation of tuberculoid lesions is discussed and the opinion is expressed that they are associated with marked reacting powers of the tissues to the ordinary acid-fast form of the leprosy bacillus, and not to a special strain or a filter-passing or other form of the organism, to a toxin, or to trophic nerve disturbance. Acute and sub-acute inflammatory changes in tuberculoid leprosy lesions have frequently been attributed to "lepra reaction." A contrast is made between these changes and those that are seen in lepra reaction in cases of nodular leprosy; the former are usually followed by subsidence and often by arrest of the disease, while the latter are often associated with a permanent increase in the infection. It is considered inadvisable to describe both of these conditions under "lepra reaction" with no qualifying term to explain which type of reaction is meant. The place of cases with tuberculoid macular lesions in the classification suggested by the Leonard Wood Memorial Conference is discussed, and the opinion is expressed that they are essentially part of the group which has been described as "neural" or "maculo-anesthetic" type, and should be classified as such. These lesions differ clinically, bacteriologically and histologically from those of the "cutaneous" or "nodular" type, and the prognosis of the cases is very much better than that of those with cutaneous lesions. Therefore the differentiation of tuberculoid lesions from "cutaneous" lesions is a matter of considerable importance. The article is illustrated by 35 photographs, many of them being of the same lesions in the stages of activity or reaction and of subsequent quiescence. —[AUTHOR'S ABSTRACT]



RODRIGUEZ, J. Lazarine leprosy. *Lep. in India* 7 (1935) 152.

This form of leprosy, said to be common in Mexico, is characterized by rapid development, and by the formation of blisters and blebs which rupture, leaving large ulcers and necrotic areas of skin; the fluid in the blebs and the discharge from the ulcers contain many bacilli. The pathological picture is essentially like "tuberculoïd" leprosy except for the large number of bacilli. The author describes and illustrates by photographs the only case of this kind he has seen in the Philippines. The patient, a young man, developed hypopigmented patches on the arm and later on the knees and ankles. The disease developed rapidly, macules appearing on various parts of the body; some of them underwent the changes described above. In none of them was there any anesthesia. There was no sign suggestive of lepra reaction. Later, erythematous patches appeared on the legs and feet and the skin rapidly sloughed, forming extensive ulcers, and there was considerable fever. Treatment by injections of mercurochrome, fluorescein and neosalvarsan had no effect.

—J. LOWE

OHMORI, A. Das vegetative Nervensystem bei der Lepra. [The vegetative nervous system.] *Japanese Jour. Dermatol. and Urol.* 38 (1935) 52 (abstract section; original in Japanese).

The vegetative nervous system of 19 patients with macular, 7 with mixed, 2 with nodular and 2 with neural leprosy was studied by means of subcutaneous administration of epinephrine, atropine or pilocarpine, and instillations of epinephrine into the conjunctival sac (Löwi reaction). In addition the Aschner and Czermak tests were made in each case, the criteria for positivity being a change of from 4 to 12 beats per minute in the pulse rate, and that for extreme positivity a change of 16 beats or over. Vagotonia was present in 16 patients (54 percent), including 9 with macular, 4 with mixed, 2 with neural and 1 with nodular leprosy. Diminished tonicity of the vegetative nervous system was found in 3 patients with mixed and 1 with macular leprosy. Abnormal sensitiveness to pilocarpine was found in 23, to epinephrine in 4, and to atropine in 9. Reactions to the Aschner and Czermak tests were positive in about one-half of the patients and dermographism was present in one; the Löwi reaction was not positive in any. Special mention is made of sympathicotonia in one patient with nodular leprosy.—[From translation of author's abstract in *Arch. Dermatol. & Syphilol.* 34 (1936) 283.]

LEFROU, G. AND DES ESSARTS, J. Q. Contribution au diagnostic des faux lépreux. Les macules de vitiligo. [Diagnosis of false leprosy; vitiligo.] *Bull. Soc. Path. exot.* 29 (1936) 459.

The authors report from Guadeloupe ten cases of vitiligo which, in Negroes, is better called essential dyschromia. To exclude leprosy one cannot depend upon the absence of anesthesia, which is often difficult to determine in children, or of bacilli, which are absent in various leprosy skin lesions. It is the histological examination which decides the diagnosis: incomplete depigmentation, without inflammation of the dermis or vascular changes.

—ET. BURNET

DE SOUZA-ARAUJO, H. C. A gravidez e eo parto como provas de cura da lepra. [Pregnancy and childbirth as proof of the cure of leprosy.] *Ann. Brasileiros Gynecol.* 2 (1936) 310-325.

Three years observation in an active leprosy focus (Para State, Brazil), convinced the author that pregnancy and childbirth are frequent factors in the outbreak

or aggravation of the disease. [Figures given by Tajiri, *THE JOURNAL* 4 (1936) 189-194, are quoted.] This being the case, it may be concluded that the absence of aggravation of the disease under these circumstances indicates that a case is cured or inactive. Three patients are mentioned. One, bacillus-free after three years of treatment, gave birth to three healthy children in five years without any indication of the return of the disease. The second patient, treated successfully during the incipient stage, had one child with no untoward developments. The third, not negative but much improved, became pregnant and had a lepra reaction. A therapeutic abortion lowered her physical and mental state so greatly that she could not continue intensive treatment. It is concluded that pregnancy and childbirth in leprosy cases without exacerbation of the symptoms gives strong proof of the cure of the disease.

—[FROM AUTHOR'S ABSTRACT]

MUIR, E. Prognosis in leprosy. *Lep. in India* 7 (1935) 59; also, in part, *Lancet* 2 (1936) 391.

The important factors in prognosis are: (a) age of the patient, (b) general health, (c) natural general resistance, (d) severity of the infection, and (e) a possible specific immunity produced by previous subliminal infection. In children natural resistance tends to be low and heavy infections are common, indicating a bad prognosis, while in adults in good general health there is often natural immunity, with slight infections, and a possible acquired specific immunity, indicating a good prognosis. The use of the leprolin test and the erythrocyte sedimentation test in prognosis is discussed. In judging the severity of the infection and in estimating the chances of its being overcome cases are divided into "resistant" and "nonresistant" ones, the division being made on the basis of clinical and bacteriological examination and the leprolin test. These two groups correspond roughly with the classification of cases as "neural" and "cutaneous." In resistant cases the prognosis is considered good and in nonresistant ones very doubtful. In the latter group clinical appearances may be very deceptive; and it is recommended that in such cases active treatment should be continued until bacteriological examination has been negative for two years, and that the patient should remain under observation for several years more. In resistant cases treatment and subsequent observation may be much shorter.

—J. LOWE

CHRISTIAN, E. B. Efficiency of institutional treatment of leprosy. *Lep. in India* 6 (1934) 193.

The author, pointing out that treatment is prolonged and sometimes discouraging, emphasizes the need for general hygiene and a cheerful atmosphere. Discussing 621 patients discharged from an inpatient institution, he says that 398 were negative and 223 showed a few residual bacilli in the skin but no signs of active disease. Of 223 who came for re-examination, 30 showed signs of relapse; of 111 patients who had been discharged as negative 17 had become positive and 8 others showed only clinical activity; of 112 who had still shown a few bacilli, 15 had become negative and 5 showed increase of bacilli. The rest were the same as or better than when discharged. These results are considered to justify the discharge of patients with a few residual bacilli in the skin (not in the mucous membrane of the nose). The relapse rate was highest in children before puberty. Out-patient treatment was relatively unsatisfactory, giving results "not half so good."

—J. LOWE

RODRIGUEZ, J. Results of leprosy treatment at different age periods. *Lep. in India* 7 (1935) 67.

Rodriguez discusses briefly recent publications on results of treatment in children, some of which record relatively poor results and frequent relapses, while others record good results with rare relapses. The necessity for accurate data covering long periods is emphasized. The results of treatment of 50 young bacteriologically positive patients are given. Of those before puberty, 50% showed improvement, of those during puberty 36%, and of those after puberty 5%, these results indicating the unfavorable effect of puberty. The frequency of relapse at different age periods is discussed on the basis of 385 cases. The relapse rates varied very little at different ages, but the figures suggest that relapses in children are more persistent and more difficult to control than in adults.

—J. Lowe

CRUZ, M. C. Parenteral administration of fresh and boiled leprotic emulsions in lepers. *Jour. Philippine Islands Med. Assoc.* 15 (1935) 319–323.

In order to test whether lepra reactions are caused by breaking down of numerous lepra bacilli the author used lepromata, some freshly ground and others boiled, injecting the material intravenously, intramuscularly and subcutaneously into lepers. Only very slight general reactions resulted, without anything like typical reactions, nor were any allergic reactions noted.—[From abstract in *Trop. Dis. Bull.* 32 (1935) 872.]

GRAMBERG, K. P. C. A. Eenige beschouwingen over de praktijk der lepra-behandeling en-bestrijding in N. O. I. [Leprosy treatment and control in Netherlands India.] *Geneesk. Tijdschr. Ned.-Ind.* 76 (1936) 1700–1721.

The author in summarizing his article states that obligatory isolation is an impracticable and undesirable measure and should be abandoned in Java, and that domestic isolation would be premature for the population there. The Civil Medical Service should gain the confidence of the various races in the different localities by installing centers for outpatient treatment and by reorganizing the asylums. It is of the utmost importance that the treatment and eradication of leprosy should be put under the supervision of physicians with long experience of the disease in all its aspects.

—H. W. W.

MOCHTAR, A. AND SARDJITO, M. Gejodeerde chaulmoogra aethylicus in de therapie der lepra. [Iodized chaulmoogra ethylate in treatment.] *Geneesk. Tijdschr. Nederlandsch-Indië* 76 (1936) 973–983.

Iodization (0.5%) of chaulmoogra ethyl esters serves to limit the local irritative effect of intramuscular injection and also some of the general symptoms; moreover, iodine is a disinfectant and may itself contribute something in the treatment. The authors have made comparative trials, though on small groups of patients, with alepol, chaulmoogra oil and the ethyl esters, and the last of these appeared to be the most efficacious. Of 43 patients treated with the iodized esters in 1934 at the polyclinic, 23 showed improvement, 17 remained stationary and 4 became worse. This medicament, because of the smallness of the dosage and the slight reaction, is especially suitable for large-scale country district operations, which have the advantage of being less costly than institutional treatment. These features justify extended use of the chaulmoogra ethyl esters.—[From abstract in *Trop. Dis. Bull.* 33 (1936) 611.]

CALCAGNO, O. Tratamiento de la lepra par las aceites de dorado, bagre amarillo, sabalo y de pescados de agua dulce. [Treatment with the oils of certain fishes.] Rev. Argentina Dermatosis. 19 (1935) 256-266; Sem. Med. (1935) 557.

Calcagno describes his physico-chemical studies of the oils of the South American fishes "dorado," "bagre amarillo," "sabalo" and certain fresh water fishes with a view to their employment in leprosy. The ethyl esters of these oils are not optically active, in contradistinction to the fatty acids from which they derive. In the chronicles of Cabeza de Vaca (Spanish conquistador) mention is made of the treatment by the Mexican Indians of scabies and leprosy with the fatty broth of the "dorado" fish.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

CALCAGNO, O. [Recommended investigations of leprosy drugs.] Actas y Trab., V. Cong. nac. Med. Argentina 5 (1935) 724.

The author recommends a detailed study of all the plants employed in ancient times in the treatment of leprosy, for example "bixa orellana," the oil of the seeds of "aguay guaza," and of the "aguay miri" (*Pouteria suaveoli*, and *P. salicifolia*) the derivatives of the oils of *Carpotroche brasiliensis* and other species of *Hydnocarpus*, and also other species of the flacourtiaceas. New preparations should be tried of the total fatty acids of chaulmoogra oils, the oils of *Hydnocarpus alcala* and *Oncoba echinata*, which are the plants that contain the highest proportions of chaulmoogric acid, though it is to be remembered that bacteriolytic experiments in vitro are not always indicative of effects produced in vivo, and that the products as yet obtained cannot be considered as specifics for leprosy.—[From translation by Dr. J. W. Lindsay of abstract in *Bol. Of. San. Panamericana* 15 (1936) April.]

MONTÉL, R. Conférence sur le traitement de la lèpre par le bleu de méthylène. [Conference on methylene blue treatment.] Bull. Soc. Path. exot. 29 (1936) 361-371.

The author reviews his ideas and personal experiences with the methylene blue treatment, records 15 cases, and discusses the mode of action of the dye in relation to the reticulo-endothelial tissue. Blockage determines an abnormal activity of that tissue.

—ET. BURNET

FÉRON. Une indication du bleu de méthylène dans le traitement de la lèpre. [Methylene blue in treatment.] Bull. Soc. Path. exot. 29 (1936) 647.

Féron thinks that methylene blue is especially a "médicament d'urgence," a "traitement exceptionnel" in acute reaction. He cites facts which suggest that there is danger of increasing hemolysis, and of transforming the hemoglobin into methemoglobin. (Montel, in discussion, replied that methylene blue will give good results in all forms of leprosy, and recalled that it has an antasphyctic effect, having a favorable action in oxygen deficiency—carbon dioxide intoxication, dyspnoea of cyanosis in serious pulmonary affections.)

—ET. BURNET

ARANTES, F. R. Accidentes observados no tratamento de lepra pelo Azul de metileno. [Accidents observed during the treatment of leprosy with methylene blue.] Rev. Leprol. São Paulo 3 (1935) 68-74 (special number).

Arantes treated 50 leprosy patients with methylene blue, the principal aim being to verify the innocuity of that substance as claimed by Montel. He found that it has a temporary beneficial effect upon febrile exacerbations, but is inferior to calcium, tartar emetic, hyposulphite, trypanflavine, fuadine, etc. In one-half

(5 of 10) of the cases with fever and pain it was efficacious, the pains disappearing in a few cases. On the other hand it may produce lepra fever, with or without pain, in cases previously free from such symptoms (11 of 50). The drug is not innocuous and may cause slight or severe signs of intoxication. When it is tolerated, it is eliminated in the bile, producing blue feces with or without diarrhoea. Toxic effects always involve the digestive tract, especially the liver; the kidneys are affected after there are evidences of hepatic lesions. Toxic hepatitis may occur in mixed or nodular leprosy. In such cases the drug is not eliminated by the feces, indicating that it is retained by the affected liver cells. Death may occur from atrophy of the liver; the author had two deaths from this cause. The sedimentation index does not undergo notable variations. The body weight changes according to the accidents observed. It is concluded that methylene blue in the dosage indicated by Montel is toxic and dangerous.

—H. C. DE S. A.

VALENTE, E. C. AND BECHELLI, L. M. O azul de metileno no tratamento das reacções leprosas. [Methylene blue in lepra reaction.] Rev. Leprol. São Paulo 3 (1935) 44-53 (special number).

The authors treated 37 patients with lepra reaction by the method claimed by Montel, with the following results: cured, 6; much improved, 5; slightly improved, 2; stationary, 16; worse, 9. The treatment therefore produced favorable results in nearly one-third of the cases. The best results were obtained with high doses, above 25 cc. per injection.

—H. C. DE S. A.

BECHELLI, L. M. Azul de metileno no tratamento das algias leprosas. [Treatment of leprosy pains with methylene blue.] Rev. Leprol. São Paulo 3 (1935) 54-67 (special number).

Bechelli employed methylene blue in the treatment of neuralgias of the limbs in 15 lepers. In 12 of them the pain disappeared, but in 5 it returned in from one and a half to five months. In 2 other cases the pain improved, but in one there was no effect. In 3 the treatment produced lepra reaction, and in another 3 which already had reaction this became worse. On the other hand 4 other patients with lepra fever were benefited. It is concluded that methylene blue is of value in treating nerve pains in leprosy, and that the size of dose does not directly determine the results; the higher doses were reserved for those cases which did not respond to the lower ones.

—H. C. DE S. A.

DE MORAES, JR., J. Tratamento das algias em doentes de lepra. [Treatment of pains in leprosy.] Rev. Leprol. São Paulo 3 (1935) 75-92 (special number).

The author employed snake anavener (*Crotalus terrificus*) from the Instituto Butantan of S. Paulo in treating leprosy pains. Thirty cases were treated, 7 of them being persistent ones that had not responded to other treatments. Daily subcutaneous injections were given into the painful area or in the vicinity of it. Good improvement was obtained in 14 cases, slight improvement in 14, and none in the other 2.

—H. C. DE S. A.

CORREA DE CARVALHO, J. Tratamento da lepra pelo azul de metileno no Asylo-  
Colonia de Aymorés. [Methylene blue treatment in the Aymorés asylum.]  
Rev. Leprol. São Paulo 3 (1935) 38-43 (special number).

Sixteen patients with exacerbation of skin symptoms were treated with methylene blue according to Montel's method. Improvement occurred in 12 cases while 4 became worse, the latter being patients with constant lepra reaction. Summa-



rizing results in 62 cases (43 mixed and 8 neural) the author concludes that though methylene blue does not determine clinical cure and can not supercede chaulmoogra, he agrees with Montel that it should be used as an adjuvant therapeutic agent, especially in leprosaria where nodular cases predominate. —H. C. DE S. A.

MONTEL, R., BABLET, J., NGUYEN HGOC NHUAN AND DO VAN HUANH. Deux cas de lèpre traités par le bleu de méthylène seul, d'abord, et par l'association "bleu de méthylène-chaulmoogra," ensuite. Action du traitement sur les symptômes cliniques, sur les tissus et sur le *Mycobacterium leprae*. [Two cases treated with methylene blue and chaulmoogra; effects on symptoms, tissues and bacilli.] Bull. Soc. Path. exot. 29 (1936) 560.

Two cases are described in detail which were treated for several months with methylene blue alone, and then with the blue associated with chaulmoogra (Mercado mixture or collobiase). The first case was completely cleared up, clinically and bacteriologically; the second was very markedly improved, and thickened nerves were diminished. Emphasis is placed on the effects on the bacilli (diminution in numbers until they disappeared, change to granulated and blue-staining forms), and on the tissues (degeneration of the Virchow cells and development of connective and collagenous tissue). When a leproma is "cured" it no longer fixes the dye.

—ET. BURNET

DELANOE, MME. A propos du traitement mixte de la lèpre. [Mixed treatment.] Bull. Soc. Path. exot. 29 (1936) 641.

This article discusses the measures that can be taken to help those lepers who cannot be given prolonged hospitalization, either for lack of facilities for it or because they will not accept it. Many medicaments can be used, together with general treatment, to clear up the lesions and, if possible, render the cases noncontagious.

—ET. BURNET

BUKER, R. S. A study of the value of trypan blue, fluorescein, and phthalic acid in the routine treatment of leprosy. Lep. in India 7 (1935) 109.

The results of treatment with the preparations mentioned were compared with those obtained with chaulmoogra preparations. Trypan blue, used in 76 cases, sometimes produced toxic reaction or lepra reaction; no definite improvement was noted. Fluorescein, given to 32 patients, gave no toxic reactions though in some cases fever was reported following injection; improvement was seen in some patients. Phthalic acid gave results similar to those of fluorescein; in some patients with lepra reaction it appeared to be of benefit, while in others it seemed to induce lepra reaction. It is concluded that while fluorescein and phthalic acid are possibly of value in certain selected cases, they should not be used as a routine treatment. Trypan blue is of no use and is sometimes harmful.

—J. LOWE

DE LA PLAZA, G., VEGAS, M. AND GOMEZ, B. La neurotoxina de Cascabel (*Crotalus terrificus*) en las algas del brote nerviosos en la lepra. [Treatment of crises of nervous leprosy with crotalus toxin.] Rev. Policl Caracas (1935) 1397-1402.

[The term "crisis" (algia) is employed here in the same sense as in tabes dorsalis, for exacerbations of pain, neuritic, arthralgic, etc., such as occur in leprosy.] The neurotoxin of *Crotalus terrificus* was prepared in the National Laboratory and put up in 2 cc. ampules each containing 0.1 mgm. in glycerin, and the remedy was employed in 30 cases. In 14 the result is described as excellent, and in another

14 there was improvement [presumably alleviation of pain], in two only did it fail, and in many the relief followed promptly on its administration. [We cannot find in the account any statement as to the mode of its use, whether injected subcutaneously, or along the affected nerve, or at the nerve root, although a brief note is given of each of the 30 cases.]—[Abstract by H. H. S. in *Trop. Dis. Bull.* 32 (1935) 871.]

PALDROCK, A. Durch spezifische Behandlung von Lepra geheilt. [Leprosy cured by specific treatment.] *Arch. Schiffs- u. Trop.-Hyg.* 39 (1935) 23-25.

This is a short account of a further case of leprosy treated successfully by the author's method of local applications to the skin lesions of carbonic acid snow and injections of the gold preparations solganal and lopion.—[Abstract from *Trop. Dis. Bull.* 32 (1935) 347.]

Dow, D. P. Late results of nerve decapsulation in leprosy. *Lep. in India* 8 (1936) 113.

Some workers have recommended surgical removal of the nerve sheath, particularly of the ulnar nerve, for the relief of severe neuritis and the prevention of subsequent deformity. Early results have been promising, and the pain and other symptoms have often been relieved. Late results, however, are not good. There is frequently a return of the neuritis, and a subsequent development of deformities probably quite as severe as, and possibly worse than, if the operation had not been performed. The trauma involved in the operation may have bad results. Surgical treatment of nerves should only be applied in the case of abscess formation.—J. LOWE.

Dow, D. P. Massage, electricity and diathermy in the treatment of contractures due to leprosy. *Lep. in India* 7 (1935) 156.

The forms of treatment mentioned are reported to have produced considerable improvement in the early stages of trophic paralysis and deformities, such as ulnar paralysis, wrist drop due to radial paralysis, etc. Cases were selected in which the muscles showed little or no reaction of degeneration. The daily treatment consisted of massage of the affected part for 15 minutes, interrupted galvano-faradism in the form of an electric bath for 15 minutes, hydro-diathermy and simple exercises for the affected muscles for 20 minutes. In a number of cases sensory and motor changes and deformities were reduced. —J. LOWE

NOCHT, B. Fieberbehandlung bei Lepra. [Fever treatment of leprosy.] *Arch. Schiffs- u. Trop.-Hyg.* 40 (1936) 2-16.

During his trip to Asia and the Philippines (1934-35) Nocht observed cases of interest in which tuberculoid cutaneous lesions were favorably modified, occasionally in surprising manner (proved by the photographs accompanying the paper) as a result of artificially induced fever, intercurrent infections, administration of vaccines, and other therapeutic procedures.—[From abstract in *Med. Pais. Calid.* 9 (1936) 133.]

RAO, G. R. The leprolin test in early neural cases. *Lep. in India* 7 (1935) 75.

The test was carried out in children, chiefly inactive N1 and N2 cases, in the observation ward of an inpatient institution. The cases had previously received treatment. Of five boys, three gave strongly positive reactions and two gave weak or negative reactions; the latter on careful examination showed lesions containing acid-fast bacilli. Of six girls, four gave positive results and two gave weak or negative

results, but in the latter no active lesions or bacilli could be found. The leprolin test is regarded as giving valuable evidence to confirm or disprove the clinical evidence of quiescence or arrest of the disease. —J. LOWE

DUBOIS, A. La réaction de Mitsuda. (Note complémentaire.) [The Mitsuda reaction; supplementary note.] Bull. Soc. Path. exot. 29 (1936) 649.

The nature of the Mitsuda-Bargehr reaction has not been elucidated. The author has applied the test to 29 insane persons living in an asylum in Belgium, people who have never had any contact with lepers and cannot have the latent disease. The test material used had been sent from the Belgian Congo. The reactions were: negative, 7 cases; weak (1–2 mm.), 7 cases; medium (3–5 mm.), 10 cases; strong (6–10 mm. or more), 5 cases. Thus among these cases, certainly uninfected, 50% gave moderately or strongly positive reactions, some having slight vesiculation. The author is led to believe that absence of reaction is caused by any important departure from health. The inoculation is irritating; the healthy subject reacts more or less strongly, while the weakened ones do not react. It is not necessary to assume a state of allergy or anergy. Dubois adds, however, that his series of cases is too small to permit drawing very positive conclusions. —ET. BURNET

JIMENEZ RIVERO, M. La intradermoreacción a la histamina en el diagnóstico precoz de las manchas leprosas. [The intradermal histamine test in the early diagnosis of macular leprosy.] Gac. Med. Caracas 42 (1935) 55–60.

The early stages of maculo-anesthetic leprosy are often difficult to diagnose, particularly when the lesions are atypical. The author describes the histamine method of Rodriguez and Plantilla. The effects of intradermal injection of a small quantity of histamine, which is a vasodilator, are first the production of a local erythema, which appears in 15 to 20 seconds; then a wheal, raised and edematous, with localized anesthesia, in 2 to 3 minutes; and finally, if the nerve-twigs are intact, a reflex erythema at the periphery of the area of edema, which recedes after a few minutes. In macular leprosy a small wheal appears a minute or so after injection and attains its maximum (1 cm.) in five minutes. There is neither itching nor erythematous halo. The absence of these is the significant feature of the test ("positive reaction"), permitting the inference that the bacilli have invaded the nerve endings and caused their degeneration, and that the macular patch is undoubtedly leprous. Brief notes of 13 cases so tested at the Asylum of Cabo Blanco are given.—[From abstract in *Trop. Dis. Bull.* 32 (1935) 858.]

MUIR, E. Cellular reaction to *Bacillus leprae*. Trans. Roy. Soc. Trop. Med. & Hyg. 29 (1936) 547–552.

Because of low toxicity, leprosy bacilli can multiply in enormous numbers in the human subject without interfering materially with the general health. The clinical and pathological signs of leprosy are caused chiefly by the response of cells of endothelial origin to the bacilli in their neighborhood. In resistant patients the bacilli are ingested and destroyed; when resistance is low they are either left to multiply in the intercellular spaces or, if ingested by the cells, multiply in their cytoplasm. Four main factors influence the degree of resistance and of cellular reaction: (a) resistance is low during the first year of life, as shown by the high incidence and severity of the infections and by the leprolin test; (b) any predisposing or intercurrent disease, or other condition which lowers the general health, tends to lessen the degree of cellular response to the bacilli; (c) when bacilli multiply in large numbers they establish a state almost resembling symbiosis with the endothelial cells which, though they

multiply and ingest the bacilli, have diminished power of destroying them; (d) as in tuberculosis, small infections tend to raise the resistance and increase the cellular response.

The bacillus has a neurotrophic tendency, passing up the sensory nerve branches from the skin and reaching the larger mixed nerves. Cellular response is less or more tardy in the nerves than in the skin, which is at least partly because the bacilli lie between the nerve fibers at a greater distance from the vessels than is the case in the skin. Thus in resistant cases the bacilli tend to be destroyed in the skin but persist in the nerves, so that the nerves act as a reservoir for them, from which they may again invade the skin during any period of lowered resistance. These hypotheses are based upon clinical and histological evidence, and give a satisfactory explanation of the prolonged latent period of leprosy, the varying appearances of leprosy lesions, the persistence of marked lesions of the skin with negative bacteriological findings, the formation of nerve abscesses, and various other problems connected with leprosy. —[From abstract in *Jour. Trop. Med. & Hyg.* 39 (1936) 70.]

MUNEUCHI, T. Lepröse Veränderungen des Epithelkörperchen und der Zirbeldrüse [Leprous changes of the parathyroid and pineal glands.] *Japanese Jour. Dermatol. & Urol.* 38 (1935) 140 (abstract section).

The parathyroid glands and the pineal body are organs which are likely to be affected by leprosy, but as yet no report of their involvement has been made. The author has examined pathologico-anatomically 45 parathyroid glands and 10 pineal bodies obtained from leprosy autopsies. In lepra maculosa or nervosa infiltration by lepra cells was never observed, whereas in all cases of the nodular form lepra cells were found in the pineal body and in almost all cases (82%) the parathyroid glands contained them. —[From translation by Dr. A. C. Santos.]

LOWE, J. Bacillaemia in leprosy. *Lep. In India.* 7 (1935) 167.

The literature of the subject is briefly reviewed and recent claims of the demonstration of the bacillus in the blood of patients and of "contacts" by the thick film method, and the recommendation of the method for "early diagnosis" are critically commented upon. Thick blood films were made from 160 patients by puncturing the skin with a needle, and slit scrapings were taken from the same places. In 74 patients blood was taken from a vein and examined by a concentration method (described), the skin at site of puncture also being examined for bacilli. Bacilli were very rarely found in the blood of neural cases. In several cutaneous cases a few bacilli were found in the venous blood, but the possibility that the bacilli were drawn from the skin during vein-puncture could not be excluded. The thick-blood-film method was extremely unreliable; positive results were obtained only in cases in which the punctured skin was definitely leprosy, and the bacilli probably originated from the skin. In cutaneous cases skin which appeared normal was often leprosy, showing many bacilli in slit smears and also in thick blood films. For finding bacilli in the blood the examination of venous blood is the only reliable procedure, but it is laborious and quite unnecessary in diagnosis, positive results being obtained only in marked cases. —[AUTHOR'S ABSTRACT]

HOFFMANN, W. H. Los gránulos intracelulares del virus de la lepra. [Intracellular granules in leprosy.] *Rev. Med. Cir. Habana* 39 (1935) 709-718.

In stained smears made from lesions of the hand in a child of 11 years the author noticed small acid-fast granules in the cytoplasm of leucocytes, although typical forms of the leprosy bacillus were not seen. These granules, all of the same size and

form, were less acid-fast than the bacillus, and the author regards them as young forms or an early stage of the typical organism. They were not, he holds, merely phagocytized fragments of disintegrating bacilli, but examples of intracellular proliferation of young forms—an intracellular phase in the evolutionary cycle of *M. leprae*. He considers them diagnostic of leprosy, and of great value in cases in which the ordinary bacillus is not found. He is of the opinion that the frequent failures at cultivation of Hansen's bacillus are ascribable to the fact that investigators have started with the adult, fully grown or degenerating forms instead of with these young, granular, developing forms, and accounts for the long latent incubation period of leprosy by suggesting that the intraleucocytic proliferation influences antibody production.—[From abstract in *Trop. Dis. Bull.* 32 (1935) 859.]

SOLANA, F. AND GUTTIERREZ-SOLANA. Sobre el cultivo "in vitro" del bacilo de Hansen. [Cultivation of the Hansen bacillus.] *Med. Pais. Cálid.* 8 (1935) 177-183, 234-246, 271-294.

From a study of the literature on the subject the authors conclude that it is not certain that the leprosy bacillus has yet been cultivated artificially. Their own results have been doubtful or negative. With blood they were always negative. The use of carbon dioxide was not beneficial. Growths from leprotic nodules were limited to the borders of the material inoculated, and no subcultures could be obtained. Microorganisms have been observed within the interstices of the inoculated tissues, but what relation they had to the leprosy bacillus was not apparent. There is no specific serological reaction for leprosy and the tests that are available are not useful for diagnosis. Lepers exhibit skin sensitiveness to the specific antigens, but this is applicable only with regard to prognosis and not diagnosis. Experimental infection of man and animals, though probably obtained, has not been satisfactorily proved. —[From a translation of authors' summary.]

AOKI AND AOKI. [The experimental study of leprosy in modern Japan.] *Acta Derm.-Venereol.* 17 (1936) 63-82.

The authors review recent advances in the study of leprosy in Japan. The bacillus has been cultivated in vitro by the use of leprosy tissue. It will grow under proper conditions as long as unexhausted tissue is present; the composition of the medium itself is unimportant. To attain success in the inoculation of animals with human leprosy their resistance must first be reduced. Animals have been fed with vitamin-free food, have been thyroidectomized, or have been subjected to local injury by inhalation of sulphuric acid or intraperitoneal injection of snake venom. Results have been best with local injury of the tissues.—[From abstract in *Urol. & Cut. Rev.* 40 (1936) 524.]

LEFROU, G. La valeur de la réaction de Vernes-péréthynol dans la lèpre. [Value of the Vernes reaction.] *Bull. Soc. Path. exot.* 29 (1936) 464.

The Vernes reaction has been studied in 188 cases of leprosy of all ages seen in Guadeloupe. The positive reaction (flocculation of the serum by perethynol) has no relation with leprosy, and only indicates syphilitic infection. Cases with such reactions should receive both antileprotic and antisyphilitic treatment.

—ET. BURNET