

CURRENT LITERATURE

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

- GYORKÖ, A. K. Resumen histórico de los antiguos leprocomios canarios; Hospital de "San Lázaro" y la actual "Leprosaría Regional." [History of the old leprosaria of the Canary Islands; San Lázaro Hospital and the present regional leprosarium.] Bol. Serv. Nac. Lep. (Brazil) 5 (1946) 55-58 (No. 3); also in Fontilles (1947), No. 7 (July) 593-595.

The origin of leprosy in the Canaries is obscure, but it may have been brought from the Peninsula by the *conquistadores*. A Hospital de San Lázaro, decreed by Felipe II in 1557, was built outside the city walls of Las Palmas, was burned during the Dutch invasion of 1559, and was rebuilt in 1614 inside the city. Patients from the island (Gran Canaria) and others of the group were cared for there. Run as a religious foundation, with a superintendent (*mampastor*) who might or might not be an ecclesiastical, it depended for maintenance partly on rents and partly on alms, to get which the least advanced cases would be selected to roam the city. Badly built at the outset, it was in ruinous condition in 1842 when the city authorities (the *ayuntamiento*), in a controversial action, transferred the patients to the abandoned convent of the Bernado nuns. The provincial authorities, however, had sold that place and demanded that the hospital should transfer to still another vacated—and much less suitable—*convento*, the Santo Domingo; and, after the *ayuntamiento* had come back with an offer to refund the price paid for the place which they had occupied, the military was called on to remove the 21 inmates by force. It was not until 1889 that Sisters of Charity were assigned to the leprosarium, where previously the inmates had been left to look for themselves. Recently the "Cabildo Insular de Gran Canaria," with aid from the state, built the present regional leprosarium on a favorable site at Marzagán in the hills, well separated from the city although only 12 kilometers from it. At first with a capacity of 100, and with 42 inmates when inaugurated in 1932, its capacity had been increased to 200 by 1945, with 90 patients actually there.

—H. W. W.

- B.E.L.R.A., INDIAN COUNCIL. The Annual Report of the Indian Council, British Empire Leprosy Relief Association for the Year 1946. Lep. India 19 (1947) 100-109.

This four-part report mentions, among many other things, increased interest in antileprosy work by the various provincial governments. Research in various fields of leprosy and teaching at the School of Tropical Medicine, Calcutta, and epidemiological work at the Leprosy Investigation Center, Bankura, West Bengal, continue. Promin and diasone had given promise in lepromatous leprosy; stildamidine was without curative effect in rat leprosy. Serious lesions of the eye are much less frequent in India than in other countries. Bacilli are seldom found in the nose when skin

lesions are negative. The erythrocyte sedimentation test is of no use in regulating treatment with hydnocarpus oil. The acid-soluble protein fractions of certain acid-fast bacilli proved to be of no value as a substitute for lepromin. The reports from the provincial branches indicated steady progress.

—DHARMENDRA.

AUSTIN, C. J. Central Leper Hospital, Makogai. Annual Report of the Medical Department, Colony of Fiji, for the Year 1947, Suva, 1948, Appendix VI, pp. 34-40.

This report has already been cited [THE JOURNAL 16 (1948) 493; News], and the statistics are in certain respects made obsolete by data from the author's 1948 report incorporated in an original article which appears in this issue. Nevertheless, there is in the present one information of some interest to anyone desiring to know something of the general leprosy situation and the leprosy control system in the South Pacific area. The remarkable variety of peoples in the Makogai institution is well known, but not the distribution of the financial responsibilities among the Administrations participating in the "Makogai scheme." On the basis of the daily averages of patients each regional Administration is responsible for a certain number of "units," a unit being one patient except in the case of those of European parentage each of whom is counted as two units, and of Chinese who are counted as $1\frac{1}{2}$ units each. The daily averages for the different Administrations is shown as follows (eliminating fractions): New Zealand, 2; Western Samoa, 49; American Samoa, 14; Cook Islands, 62; Tonga, 26; Gilbert Islands, 69; Fiji, 434; totalling 656—which last figure compares with 611 on Jan. 1st and 703 on Dec. 31st. The Fiji government thus recovers 35% of its annual expenditures on Makogai. The two units charged to New Zealand were 1 Euronesian and 1 Niuean (although another table shows that there were 6 Niue Islanders on Jan. 1st, with 2 more admitted during the year). That American Samoa sends its cases to this institution is news, at least to the reviewer. Mention is made of a new if long-urged "Makogai Sub-Station" in Suva, a clearing center for both new and discharged patients (for the latter to serve as a rehabilitation center) made possible by a gift from the Lepers Trust Board of New Zealand. The station was to be staffed by two Makogai-trained nurses and possibly an AMP (assistant medical practitioner, of the famous Suva school), working under the medical officer of health, Suva.—H. W. W.

THOMSON, F. A. Medical inspection of school children. Annual Report of the Medical Department, Colony of Fiji, for the Year 1947, Suva, 1948, Appendix V, pp. 17-33.

A survey of 7,281 school children in 38 schools in and near Suva was made by the author, a lady doctor temporarily serving as an officer of the medical service. The skin conditions found were: (a) dry skin, an atrophic condition manifested by loss of normal gloss and more or less dryness, associated with loss of elasticity; (b) mosaic skin, a widespread fissuring of the epidermis in a severely dry skin, typically found on shins and thighs but sometimes more widespread (the moist "crazy pavement eruption" and other conditions described by Williams were not seen); (c) phrynoderma or "toadskin," whether in small patches or large, special attention being given hyperkeratosis follicularis; and (d) pellagra-like eruptions. One or the other of these lesions was found in 31% of 2,515

Fijian children, and 25% of 3,214 Indian children. None of them was found in any of the 336 European children, and of the 697 part-Europeans only 7.1% had the dry skin and 1.0% had phrynoderma. Two cases of the pellagra-like condition improved greatly with 100 mgm. of nicotinic acid daily for 10 days. One child of the total of 7,281 involved was found to be suffering from leprosy and was transferred to Makogai. —H. W. W.

- SHLIMOVITZ, N. Leprosy: A report of nine cases among natives of the Mount Hagen area in New Guinea. *Med. J. Australia* **1** (1946) 369-370.

This is an illustrated account of leprosy cases found in the mountainous interior of New Guinea, at an elevation of 5,000 feet, where the disease had not previously been reported. (The disease is well known in the coastal areas, and there is a leprosarium at Mandang.) Some of these cases were of long standing, indicating that the disease is not of recent importation. Seven of them were neural cases—3 advanced, with claw hands, 3 earlier, with discolored patches and alterations of sensation, and 1 had thickened ulnars without deformity. The other two cases were lepromatous. It is stated that leprosy undoubtedly exists in other localities in the interior of New Guinea.—[From abstract in *Trop. Dis. Bull.* **43** (1946) 750.]

- ROBINSON, S. S. and TASKER, S. Leprosy in Los Angeles; statistical study of 75 cases. *California Med.* **68** (1948) 362-366.

A statistical study is presented of 75 cases of leprosy observed at the Los Angeles County General Hospital from 1928 to 1945. Leprosy in Los Angeles city and county exists as a small persistent endemic focus which is primarily due to the importation of the disease by foreign-born Mexicans from Mexico; 91% of the affected persons resided in the Mexican Quarter. The possibility of spread of leprosy to Caucasians residing there is indicated by the fact that 1 of 7 white American patients was a native of this area and had always lived there. It is felt that physicians in the Mexican quarter can help eradicate the disease by being alert to recognize and segregate those who have it. The presence of leprosy in 4 white Americans who probably contracted the disease in the Philippines indicates that other cases may develop in veterans who have served in endemic areas

—F. A. JOHANSEN.

- BLOSS, J. F. E. The control of leprosy among the Azande, Anglo-Egyptian Sudan. *Trans. Roy. Soc. Trop. Med. & Hyg.* **39** (1946) 423-436.

The writer reviews, after twelve years of antileprosy measures in the humid southern Sudan, the control attained among the Azande people. In 1929, while making a sleeping sickness investigation, a survey of leprosy was also carried out in this region and 6,400 cases were found among a population of approximately 180,000 (3.3%). It is remarkable that only 20% were of the neural type, whereas in most highly endemic areas 80% of neural cases would be more likely; 20% were under 20 years of age. In 1929-1930, 5,500 cases were segregated with their families in two settlements, at Souras Yubu and Li Rangu, which were placed under chiefs with a part-time doctor in charge, but many of the patients deserted and only the worst cases remained; large numbers had been discharged as quiescent and noninfective. In 1935 there were 204 advanced cases in segregation, 1,021 under observation and treatment in the settlements,

809 outside cases that had never been in the settlement, and 1,464 discharged cases living inside or outside the settlements. In 1942, 60% of the patients in the Li Rangu Settlement—which was then the largest in Africa, with 25 sq. miles of land—were neurals (54%N1). In that year the total incidence was calculated as being very similar to that 12 years before, but less than 12% were under 20 and new cases among children were comparatively rare. The writer gathers from these observations that leprosy is now on the decrease. He believes that the low protein content of the diet—meat being lacking due to the tsetse fly—is the chief cause of leprosy. [In this he differs from most recent writers on the subject, who tend to ascribe a secondary, though still important, role to diet.] He hopes that with economic development, the control of other endemic diseases, and improved education leprosy will tend to die out. While the large type of leprosy settlement is still necessary, it should be changed to smaller chiefs' settlements as soon as education produces intelligent and full support of the chiefs and the people; but to force this development at the wrong time would cause chaos.—[From abstracts in *Lep. Rev.* **17** (1946) 99, and *Trop. Dis. Bull.* **43** (1946) 656.]

KATZENELLENBOGEN, I. A contribution to the leprosy problem in Palestine; Bir-Ajoub, the unexplored leprosarium. *Harefuah* **31** (1946) 139-145.

The author describes a voluntary segregation center of leprosy patients at Bir-Ajoub, located to the southeast of Jerusalem. This place was inhabited by 15 Arabic patients, who had come there for various reasons. One of them left the leprosarium in Jerusalem because he could not get along with the other patients. Others had been driven away from their native villages. The living conditions in Bir-Ajoub were very primitive. The patients were not under systematic medical care and received no regular treatments.

—FELIX SAGHER.

CANAAN, T. Immigration and leprosy. *J. Palestine Arab Med. Assoc.* **2** (1947) 72-78.

The author favors strict isolation of all persons with leprosy. None should be allowed to immigrate into any new country. This is regarded by the author as an effective method to stamp out leprosy.—[From abstract in *Excerpta Med.* **2** (1948) 114, supplied by Felix Sagher.]

[EDITORIAL] Leprosy in Calcutta. *Lep. India* **18** (1946) 129-131.

From sample surveys carried out during 1932-1937 in some sections of the population of the city, the incidence in Calcutta is roughly estimated to be 0.5%. Analysis of the records of patients attending the outpatient clinics in the city also points to the serious leprosy problem in the city. Of 1,172 "new" patients attending in 1945 the two clinics run by the Premananda Leper Dispensaries, 864 were from inside the city. Of the new patients of the outpatient clinic of the leprosy department of the School of Tropical Medicine during the 10 years 1936-1945, 5,547 were residents. Of these, 4,091 were noninfectious and 1,456 infectious. The importance of augmenting the present facilities for treatment and isolation is stressed.

—DHARMENDRA.

FIGUEROA, N. and DESAI, S. D. The importance of home visits in the control of leprosy in Bombay City. *Lep. India* **20** (1948) 149-152.

The authors stress the importance of home visits in the control of leprosy, and describe the results obtained by such methods at the Ackworth

Leper Home Clinic, Bombay, during the years 1943 to 1947. Of 412 patients who had stopped treatment and were visited, 159 have commenced attending again. The health visitors found 131 persons among the large number of contacts to be suffering from leprosy. Effective home isolation of infective patients has been introduced in 25 homes. In other homes the patients were educated to keep away from the children. Of the patients selected for home visits, 75% were from the laboring class earning daily wages. There was much overcrowding in their homes, and proper home isolation in such instances was out of the question. The diet of the people was poor in quality and quantity. The cause of noncontinuance of treatment was either great improvement or no improvement at all. The subject of birth control for infective patients has lately been introduced in the talks, at least among intelligent patients. —DHARMENDRA.

CRAWFORD, W. Leprosy eradication and control. *Chinese Med. J.* **66** (1949) 281-282.

Reviewing briefly the failure of methods of isolation and segregation to eradicate leprosy, the author emphasizes the need of training personnel who will be willing to carry the treatment of the disease to the patients. There is much that can be done to educate the public and the families of patients, since many who are at present neglected might, if they understood what is already known about leprosy, be safely treated at home. The plan put out some years ago by the National Health Administration of China to build a 500 bed hospital for leprosy patients in Nanking is criticized. What is needed are small, well equipped and well managed hospitals to train professional workers in regions where the disease is epidemic. A team of five doctors, ten nurses and the necessary attendants could then go out into the surrounding country, using the base hospital as a center for survey and research. There already exist places which would serve as excellent centers for such a program. —N. D. FRASER.

McCoy, G. W. Leprosy in its relation to the practicing physician. *New Orleans Med. & Surg. J.* **101** (1949) 585.

The author feels that a new orientation on the part of public health authorities in relation to the management of leprosy will necessitate a new attitude on the part of the practicing physician. In the past the physician has avoided treating cases of leprosy because he has shared the attitude that the disease is loathsome and incurable, or because previous therapy offered little or nothing, or because it would be detrimental to his practice if cases were treated in the office. The basis for a new attitude is that leprosy is a public health problem of importance only in a few states (Louisiana, Texas, Florida and California), and that tuberculoid and neural cases are rarely sources of infection. Cases in an endemic area should be considered on an individual basis, the risk of association being small except for children, who should be protected from contact with infective cases. The practicing physician may be called on to participate in the new program by being alert to diagnose cases, and by giving advice regarding isolation, which varies with different states. As a general rule any case requiring medical care should be advised to go to the federal leprosarium unless economic circumstances and home environment make satisfactory home care possible. —F. A. JOHANSEN.

- CHAUDHURY, A. K. R. Note on the role of vitamin B complex in causation of leprosy. *Indian Med. J.* **40** (1946) 211-212.

The author advances a number of arguments in support of his belief that leprosy is caused by a deficiency of the vitamin B complex, including the statements that vitamin B deficiency increases the susceptibility of rats to rat leprosy and aggravates the condition, that vitamin B excretion in the urine of leprosy patients is either nil or far below normal, and that the administration of vitamin B to them gives good therapeutic results. His explanation is that in the deficiency state the normal oxidation metabolism within the cells is inhibited, resulting in characteristic functional disturbances of the nervous system, and the nervous system—otherwise quite immune—is then easily invaded by the leprosy bacillus. He thinks that the economizing effect of fats with regard to vitamin B probably explains the therapeutic value of vegetable oils in leprosy. —DHARMENDRA.

- RYRIE, G. A. Regional differences in leprosy; leprosy among Chinese in Malaya. *Lep. Rev.* **19** (1948) 4-11.

"Regional differences," says the writer, "constitute major difficulties in our common understanding of leprosy. The incidence of lepra fever, tuberculoid reaction, ulcerative tuberculoid leprosy, leprotic affections of the eye, peripheral nerve involvement and leprotic alopecia varies as markedly as to make the commonplace of one area rareties of another." In Malaya the Chinese, Malays and Indians show striking differences. About three-fourths of the Indian cases are tuberculoid and run a self-healing course, whereas only one-third of the Chinese are tuberculoid and self-healing is rare; the Malays appear to be intermediate in type. Regarding the Chinese, at least 20 per mille of children between 5 and 15 show early macules, and from 20 to 25% of them develop tuberculoid lesions. The author had never observed the development of a lepromatous lesion directly from the early macule. The earlier the development of tuberculoid leprosy after the appearance of the early macule, the earlier and more probable is the subsequent development of lepromatous change. In the 16-40 age group the incidence of leprosy is 6 per mille, a considerable number of the cases are difficult to classify since some show typical tuberculoid lesions in one part of the body and equally typical lepromatous lesions in another. In many cases the lesions, both clinically and histologically, appear to be intermediate in type between tuberculoid and lepromatous, and many of them later degenerate into the lepromatous type. In almost every lepromatous case in the Chinese the condition when first observed was tuberculoid. The approach to treatment of the tuberculoid leprosy in the Chinese should be on the basic assumption of the danger of later lepromatous change. —G. O. TEICHMANN.

- AUSTIN, C. J. Regional and racial differences in leprosy. *Lep. Rev.* **19** (1948) 20-22.

This short article is summarized by the author as follows: (1) The incidence of the lepromatous type of leprosy among Indians in Melanesia would appear to be higher than the incidence of lepromatous leprosy among the Melanesians. (2) The Indian tends to have a better prognosis than the Melanesian when similar degrees of infection are considered. (3) The geographical factor does not appear to be significant. (4) No evidence is available to assess the importance of the dietetic factor. —G. O. TEICHMANN.

- ROSS, C. M. Some differences in the leprosy of the Gambia and Nigeria. *Lep. Rev.* **19** (1948) 12-14.

During the dry season of 1947 a survey was carried out in three provinces of the Gambia, during which over 17,000 persons were examined. The social condition of the people was very low, and avitaminosis was common. Nevertheless, of the leprosy cases found (the actual number not stated), 71% were tuberculoid, 13% lepromatous and 15% unclassified. In the Gambia, leprosy seemed to be much more severe; more of the patients seemed to have large and extensive nodules, and the bacillary content seemed to be very high. In Nigeria bacilli were seldom found in tuberculoid lesions, but they were found in practically all cases in the Gambia. Extensive nerve involvement was also very common there. —G. O. TEICHMANN.

- DUBOIS, A. Evolution des macules lépreuses au Congo. [Evolution of leprosy macules in the Congo.] *Bull. Acad. Roy. Méd. Belgique* **13** (1948) 392-396.

Attention is called to the difficulties encountered in the diagnosis of leprosy macules in cases of slight development, a condition frequently met with in the Belgian Congo. In many instances the follow-up of such cases shows next to nothing very clearly, even after 10 years of observation. For want of precise methods of diagnoses it is often necessary to classify subjects as "suspects." Fortunately, their importance with regard to prophylaxis is very slight. Specific treatment is not to be recommended. —AUTHOR'S ABSTRACT.

- WIRADIKARTA, D. & DARWIS, A. Die tuberculoid lepra. (Ihre klinische und therapeutische bedeutung.) [Tuberculoid leprosy; its clinical and therapeutic significance.] *Acta Dermato-venereol.* **27** (1947) 307-333.

Seven cases of tuberculoid leprosy recognized on clinical grounds are described in this respect from Java. In six of them the tuberculoid nature was confirmed by the histological and routine bacteriological findings. In one case observed during a period of two years the skin lesions occurred in crops and subsided apparently without reference to any specific treatment. Thus, tuberculoid cases are not suitable for proving the usefulness of any curative method. There is a certain parallelism between the clinical aspect of the skin lesions and the histologic changes. In acute or subacute elevated erythematous macules the histological picture is typical tuberculoid, with epithelioid cells and numerous Langhans' giant cells. In their active phase the giant cells seem to disappear, and the picture is that of the ordinary anesthetic macule. It is held to be reasonable to classify these cases as a variety of the neural type.—[From author's summary in English, supplied by J. Reenstierna.]

- DHARMENDRA & SEN, N. R. Leprosy bacilli in the nose of a neural case with bacteriologically negative skin lesions. *Lep. India* **18** (1946) 88-90.

This report is of a case of leprosy of the neural type which has been persistently bacteriologically negative in the skin but positive in the nose. At the time of the first examination the history and the clinical condition were suggestive of "lepra reaction," and histological examination tended to support that view. The finding of the bacilli has been confined to one side of the nose, and in that site there was found cellular infiltration of the nasal mucosa. —AUTHOR'S ABSTRACT.

- BARONDES, R. DE R. Bone absorptive changes in leprosy. *Med. Rec.* **159** (1946) 545-546.

The author recalls that Faget and Cooney attribute the bone absorption in leprosy to neurotrophic lesions (Faget) or to disturbance of circulation, anesthesia and pressure (Cooney). A factor which has been overlooked, he states, is the localized tissue acidosis in and about the affected bones in certain types of leprosy. He thinks that, prior to infection, there is a disturbance of the acid-base equilibrium with lowered pH of the tissues, and that this becomes a predisposing factor in the acquisition of the disease. He holds that, as a rule, leprosy develops in people subsisting on starvation or suboptimal diets or upon foods high in acid ash, and that such diets lead to acidemia, hypotension, mineral deficiencies and hypovitaminoses. With local tissue acidosis and the changed acid-base equilibrium induced by the metabolic activities of the Hansen bacillus, decalcification occurs. On the basis of this hypothesis some form of alkalotherapy is indicated in leprosy and tuberculosis, along with other therapeutic measures to aid restoration of the acid-base equilibrium, thereby facilitating calcium and lipid deposition, fibrosis, and the walling off of the foci of infection.

—F. A. JOHANSEN.

- BLANCO, J. F. Lepra ocular. [Ocular leprosy.] *Rev. méd. Hosp. Español* **19** (1949) 26-35.

The author, an ophthalmologist of the Instituto Baldomero Sommer, the biggest sanatorium-colony of the five existing in Argentina, makes a complete description of the ocular complications in leprosy. The routes of infection are cutaneous, regional and hematic. The author holds that lesions of the fundus are the exception, and that the cases reported may be due to syphilis, tuberculosis or septic foci. He accepts the descriptions of diffused episcleritis, which may be acute and evanescent, without any of its particular characteristics, and of localized episcleritis, which may be a real leproma of the limbus. In exploring the corneal reflex in 370 lepromatous patients he found it to be normal in 305, although all of them had easily discernable lesions of the region.

—G. BASOMBRIO.

- APARISI JIJON, T. Nota previa del tratamiento de los lepromas recidivantes, epiesclerales y esclerales. [Preliminary note on the treatment of recurrent epiescleral and escleral lepromas.] *Fontilles* **2** (1948) 46-47.

This is a report on the frequency of lepromas of the site mentioned, which were usually recurrent and reappeared even after having been electrocoagulated. The author extirpated the lepromas and a piece of the mucosa of the conjunctiva at the site of implantation, which he encircled, and covered the affected site with labial mucosa of the patient. Healing was perfect and without recurrence, at least with the usual frequency.

—F. CONTRERAS DUEÑAS.

- GUILLEN PRATS, J. & IBARS ESTEVE, A. Intensas leproreacciones sobre un injerto cutáneo. [Severe lepra reaction in a skin graft.] *Fontilles* **2** (1948) 27-29.

This is a report of case of a female patient who, at the age of 15 years, the nature of her disease not recognized, was given a skin graft for treatment of a torpid ulcer on one of her arms near the elbow. The

graft took irregularly and slowly. Later, the condition diagnosed as leprosy, she was admitted to Fontilles where she had repeated lepra reactions, two or three times a year. Accompanying these reactions new lepromas appeared precisely in the grafted skin. —F. CONTRERAS DUEÑAS.

- MONTESTRUC, E. & RAGUSIN. Le goundou lépreux. Considérations étiologiques sur le goundou. [The etiology of goundou; leprosy as a cause.] Cahiers Méd. Union française (Algiers) 2 (1947) 665-666.

Writers are by no means unanimous in ascribing goundou to yaws; some say they see no cases, and others only rare cases, in places where yaws is common. The present report is of a case in Martinique, in a woman 27 years of age who was suffering from leprosy and showed typical goundou nasal tumors. Hansen's bacilli were present in the nasal mucosa and in biopsy material of a tubercle. The Wasserman reaction was negative, and no history indicative of yaws was obtainable. Hirschberg and Biehler are quoted [without references] as having published an important work on leprosy of the bones, and the former as mentioning lesions of the bones of the upper jaw and the nose. Herivaux is said to have shown to the Medical Society of Madagascar, in 1930, a patient suffering from mixed leprosy with goundou-like tumors on each side of the nose which he called *pseudo-goundou*, adding that the patient was free from yaws.—[From abstract in *Trop. Dis. Bull.* 45 (1948) 345.]

- MONTESTRUC, E. & CAUBET, P. Ainhum lépreux localisé au cinquième doigt. [Ainhum of the little finger in a patient with leprosy.] Cahiers Méd. Union française (Algiers) 2 (1947) 667.

Thiroux and Delamarre are mentioned as having observed ainum and leprosy co-existing in the same patient [no reference is given]. A photograph reproduced in the present note shows leprosy mutilations of the fingers of both hands and ainum of the right little finger. The authors state definitely that "it is impossible, in this case, not to ascribe the ainum as due to leprosy," but in another place state more guardedly "leprosy may not always take part in the production of lesions like this" and conclude that ainum, goundou and perforating ulcer of the sole are not due to one single cause, but have a mixed etiology.—[Abstract from *Trop. Dis. Bull.* 45 (1948) 345.]

- GRAY, H. H. The chemotherapy of leprosy. New Orleans Med. & Surg. J. 100 (1947) 218-239.

This paper reviews some of the attempts to find useful drugs and contains a wealth of material gathered from published reports and conversations with leprologists. The references number 290, of which only 33 were published. Besides general information on a wide range of subjects, from the history of the disease to diagnosis and prognosis, much is said about chaulmoogra oil and its derivatives, with comments on that treatment by McCoy, Muir and Cochrane. Reports of treatment with many other substances are cited, leading up to the use of the sulfone drugs. This manuscript was awarded the Walter Reed Memorial Medal for the best thesis on a subject having to do with tropical or preventive medicine presented to the Tulane Medical School. —F. A. JOHANSEN.

- FAGET, G. H. & ERICKSON, P. T. Chemotherapy of leprosy. J. American Med. Assoc. 136 (1948) 451-457.

This article reviews the experience at the national leprosarium, at Carville, with the sulfone drugs and the antibiotics used there. Promin, diasone and promizole are discussed as to technique of administration, blood and urine levels, therapeutic and bacteriologic effects, and toxic manifestations. Three case histories, one for each of these sulfones, are given, with photographs. A table reveals the extent to which promin and diasone had been used over a period of 6 years in 371 cases, and the results obtained. In 1946 the number of patients discharged with the disease arrested was more than double the annual average for the 10 years prior to the institution of sulfone therapy, and the number of deaths was less than one-half the previous average. Further time—5 to 10 years or longer—must elapse before the ultimate value of sulfone therapy can be definitely established with respect to relapse, but at present it is the best available. The use of penicillin and streptomycin is briefly discussed. Toxic manifestations with streptomycin proved too severe in comparison with its slight therapeutic value in the large doses given.

—F. A. JOHANSEN.

FONTE, J. & ROSSELL, C. S. C. Contribuição ao tratamento da lepra pelo promin. Controle dos doentes pela pesquisa do bacilo no sangue. [Contribution to promin treatment; control by search for bacilli in the blood.] *Brazil-méd.* **62** (1948) 170-176.

The authors treated 8 lepromatous patients with promin, giving from 243 to 1,014 gm. in from 4 to 15 months. In general the tolerance was good, although in the beginning all showed exacerbation of their skin lesions and some lepra reaction of the erythema multiforme type, followed by amelioration of all skin lesions. Nerve affections did not improve. Before treatment 5 were lepromin-negative and one was doubtful (2 not tested); after treatment 7 were found negative and 1 was 1+. Before treatment 6 were strongly and 2 weakly positive for bacilli in their nasal mucus or skin fluid; after treatment all patients remained positive, 4 strongly positive and 4 weakly so in the skin. The search for bacilli in the blood, employing the methods of Crow and Rivas and Gomes de Faria's modification of the latter, gave 1+ in 1 case, 2+ in 5 cases, and 2+ with globies in two cases. Fragmentation of bacilli and reduction of acid-fastness was noticed in some cases. It is concluded that improvement under sulfone drugs is very slow, and that the persistence of bacilli in the nasal mucus, skin fluid and blood of all patients did not encourage use of the method as a prophylactic measure against the disease.

—H. C. DE SOUZA-ARAÚJO.

MACDONALD, A. B. Treatment with diasone: Twelve months experience with 22 patients; an interim report. *Lep. Rev.* **20** (1949) 68-77.

This preliminary report deals with 22 advanced cases of lepromatous leprosy treated with diasone for 12 months. Many had been in the colony from 10 to 15 years and had failed to respond to hydnocarpus oil. With dosage gradually increased to 4 tablets daily, 12 cases showed marked or moderate improvement, 9 slight improvement, and only one was somewhat worse; 2 had become bacteriologically negative. General health improved, ulcers cleared up, and laryngeal troubles got better.

—G. O. TEICHMANN.

REYES, E., BARRIENTOS, E., RODRIGUEZ, J. J., AMAYA, A. C. & PERALTA, R. Severe reaction resembling therapeutic shock in lepers following administration of diasone. *Arch. Dermat. & Syph.* **59** (1949) 118.

The authors, writing from San Salvador, give a brief clinical description of 2 advanced (L3) lepromatous cases of leprosy first treated for several months with chaulmoogra oil, then changed to promin with encouraging results, the nodules disappearing almost entirely [duration of this treatment not stated], and finally to diasone with a dosage of 0.3 gm. 3 times daily. Eight weeks thereafter both had a rosy-red eruption over exactly the same areas of skin formerly involved by lesions, with fever, nausea and migraine. Diasone was stopped and the phenomenon disappeared in 3 days. When diasone was restarted in one of these patients two weeks later, the eruption reappeared within four days and was more severe than the first time. The authors therefore recommend that diasone be discontinued in such cases. They state that this rosy eruption, which they think is an exacerbation of leprosy and should therefore be compared to the Jarisch-Herxheimer reaction in syphilis, has not heretofore been described as one of the toxic effects seen with diasone therapy. [This report seems to be a description of the familiar "erythema nodosum" eruption, induced in patients given the full dose of 1 gm. of diasone from the outset. Experience at Carville is that if dosage is begun with 0.3 gm. and slowly increased to 1 gm., erythema nodosum is not seen so frequently or so severely. Also, this syndrome does not preclude further diasone therapy unless it recurs frequently and with great severity.]

—F. A. JOHANSEN.

SOUZA-ARAUJO, H. C. As sulfonas não alteram a ácido-álcool resistência dos bacilos de Hansen e de Stefansky. [Sulfone drugs do not alter the acid-fastness of the bacilli of Hansen and Stefansky.] Mem. Inst. Oswaldo Cruz 46 (1948) 579-580.

The author has tried to verify a claim that sulfone drugs cause the loss of acid-fastness of Hansen and Stefansky bacilli *in vitro* by the following experiments. (1) Hansen bacillus: A few drops of cutaneous lymph from active lesions of an L3 case were put into two small tubes. To one was added 1 cc. of 40% promin solution, to the other 1 cc. of a 10% solution of diasone. Both were incubated at 37°C. for two hours. Stained smears from both mixtures were rich in bacilli and globies strongly stained by fuchsin. (2) Stefansky bacillus: In each of three small tubes was put 1 cc. of fresh suspension of a rat leproma. To one was added 1 cc. of promin solution, to another 1 cc. of diasone solution, to the third 1 cc. of a solution of rongalite (sodium methylsulfoxilate). All were incubated at 37°C. for 24 hours. Stained smears showed only acid-fast bacilli and granules. (3) Cultures of acid-fast bacilli: Against these cultures, isolated by the author from leprosy patients (José and Rudan strains) promin, diasone and rongalite had very weak or no bacteriostatic action. To 1 cc. portions of glycerinated broth cultures the drug solutions were added as before, and after similar treatment all six stained smears showed only acid-fast bacilli. Transplants of all grew normally in glycerinated and Lowenstein media.

—AUTHOR'S SUMMARY.

PANJA, R. Use of penicillin in rat and human leprosy. Indian Med. Gaz. 81 (1946) 306.

A small scale trial of penicillin in rat and human leprosy is reported. The dose for rats was 400 units given twice a day for 7 consecutive days, and for man 400 to 1,200 units intradermally over lesions and subcutaneous

ously along the thickened nerves. No benefit was observed in either case after several weeks' treatment. —DHARMENDRA.

- LANDAU, R. Leprosy treated with penicillin. *New York State J. Med.* **47** (1947) 1516-1517.

This is a case report of a patient who received crude penicillin parenterally over a period of 6 months. Clinical improvement with healing of ulcers and disappearance of nodules was noted after 4 months. This improvement followed slight erythematous reaction over the nodules following each injection. No general reactions were noted following intramuscular injections. Intravenous injections produced a rise in temperature to 104.5 F. No change in the sedimentation rate occurred. Eosinophilia was noted, the cells increasing from 4 at the beginning to 32 as treatment progressed.

—F. A. JOHANSEN.

- CHANDY, P. J. Iodised hydnocarpus oil in the treatment of leprosy. *Lep. India* **19** (1947) 72-79.

The author reports on the treatment of 44 cases, most of which were lepromatous and bacteriologically positive, by iodized hydnocarpus oil prepared so as to contain no free iodine. Resublimed iodine, 36 grains, is dissolved in 1 oz. of hydnocarpus ethyl esters which is then poured into a 1 lb. heat-proof bottle containing 15 oz. of hydnocarpus oil. After shaking, the mixture is autoclaved at 15 lb. pressure for 30 minutes. Injections cause no pain, and as much as 10 cc. can be injected intramuscularly at one site without induration or other trouble and without serious reactions. The injections were given once a week for two years, to a total amount of over 400 cc. Nodules flattened and in time disappeared, bacilli decreased and a majority of the cases became bacteriologically negative, especially those in which the organisms were not very numerous at first. The results were better than with hydnocreol.—[From abstract in *Trop. Dis. Bull.* **45** (1948) 713.]

- ADRIAENS, L. Recherches sur la composition chimique des Flacourtiacées à huile chaulmoogrique du Congo Belge. [Study of the chemical composition of chaulmoogra oils of the Belgian Congo.] *Inst. Roy. Col. Belge (Sec. Sc. Nat. et Med. Mém.)* **15** (1946) 87.

The author studied the indigenous *Caloncoba* and certain *Hydnocarpus* species introduced into the Belgian Congo, analyzing the seeds and the fats obtained from them, and also the residue from the distillation of the ethyl esters to find the irritating decomposition products. It appears that the butters of *C. welwitschii*, *C. glauca* and *Lindackeria dentata* contain important percentages (+50%) of chaulmoogric, hydnocarpic or gorlic acids. *Lindackeria* contains hydnocarpic acid predominantly, with no gorlic acid, whereas *Caloncoba* contains mostly chaulmoogric acid. The oils of the introduced *H. wightiana* and *H. anthelmintica* seem to contain relatively small proportions of the special acids, as compared with analyses made in India, and an excess of tarry acids. These were also studied, and the local irritation is attributed to certain lactonic acids.

—A. DUBOIS.

- FLANDIN, C. & BASSET, A. Sur l'action cicatrisante et analgésique des huiles de *Calophyllum*. [On the cicatrizing and analgesic action of the oils of *Calophyllum*.] *Ann. Dermat. Syph.* **6** (1946) 125-127.

FLANDIN, C. & BASSET, A. Action cicatrisante de l'huile de Calophyllum. [Healing action of Calophyllum oil.] Ann. Dermat. Syph. 6 (1946) 125 (abstract).

(1) Neff found the ethyl esters of one of these oils (*C. bigator*) to be useful in combating neural and muscular pains, although inactive against the disease itself. The authors, as a part of a systematic study of antileprosy medicaments begun when the senior author took over the Pavillon de Malte of the Hôpital Saint-Louis in Paris, and particularly of the oils which natives of tropical regions employ empirically, worked with a purified oil of *C. inophyllum* from Indo-China. They claim it to be hemostatic, antipyrogenic, and—more important—regenerative and cicatrizing, aiding materially in the healing of the ulcers of leprosy patients, especially those of tropic origin. (2) The second reference pertains to a demonstration, made at the same meeting, of two cases—not of leprosy—treated with this product. One was of tuberculous ulcers of the neck with fistulous adenitis, of many months' duration and resistant to all the forms of local and general treatment which had been used, but which healed completely in two months with daily injections of the oil into the fistulous tracts and dressings of gauze soaked in the oil. The other was of superficial but extensive burns involving the scalp, treated for 110 days with sulfonamide powders without improvement and with retrogression of the general condition, which healed in six weeks under daily dressings with the oil. —H. W. W.

PLASSMAN.⁸ Traitement de la lèpre humaine avec les produits extraits des Oncobées du Congo Belge. [Treatment with Coloncoba products.] Ann. Soc. Belge Med. Trop. 29 (1949) 23.

The author extracted, either by carbon tetrachloride or by use of a hydraulic press, the oil of the wild Coloncoba of Belgian Congo. The oil obtained was injected intradermally or intramuscularly. Out of 218 "localized" cases treated, 185 are clinically cured, 171 of them for at least 2 years. Out of 825 "generalized" cases treated, 51 are clinically cured and 639 are very much improved. There is no statement of bacteriological control. The general and local tolerance of the drug is excellent.—A. DUBOIS.

SEABRA, P. Oxidase and tuberculosis; physiopathologic meaning and possibilities for diagnosis of infection by acid-fast bacilli; preliminary report. Dis. Chest 12 (1946) 550-561.

The author has observed that in tuberculosis, leucocytic oxidase increases proportionately to the advance of the disease, contrary to what happens with serum lipase. He feels that this change may be due to the fact that the surrounding membrane of the granulation of the neutrophil is similar in composition to the acid-fast capsule of the Koch bacillus, whose membrane being lipidic is destroyed by lipase. A modified Ziehl-Neelsen staining method showed that the substance surrounding the granulations of the neutrophils is acid-fast. The author then recalls the prevailing conception as exposed by Middlebrook in tuberculosis, that lipase decreases because the virulent Koch bacillus produces a neutralizing substance formerly called "antilecithinase" by Calmette and now known as the "P factor." Since the capsule of the oxidase granulations becomes stronger in tuberculosis, the normal oxidase effusion from the neutrophil to the red blood cells is reduced below normal, a fact demonstrated by the electrophotometer method of evaluating erythrocytic oxidase. This reduction of ery-

throcytic oxidase by the virulent acid-fast bacillus offers new diagnostic possibilities. The article contains a photograph of the apparatus used and a graph showing the results obtained with 116 patients, 8 of whom were leprosy.

—F. A. JOHANSEN.

DE MESQUITA, A. P. Prova foto-oxidastica Seabra na lepra. [Seabra oxidase test in leprosy.] *Imprensa Med.* **24** (1948) 40; also *Medical Times* (1948) (Feb.).

It has been shown that in tuberculosis the erythrocytic oxidase level is low due to the "P factor" (secreted by the Koch bacillus). Because of the similarities between the tuberculosis and leprosy bacilli, this test was studied in leprosy patients, with the following provisional conclusions: In lepromatous cases there is a decrease of the erythrocytic oxidase; in the indeterminate and tuberculoid cases the results are normal. Bacteriologically positive cases usually give lower results than bacteriologically negative ones, in which the results are almost always normal.—[From abstract in *Rev. brasileira Leprol.* **16** (1948) 245.]

ALLEN, A. C. Survey of pathological studies of cutaneous disease during World War II. *Leprosy. Arch. Dermat. & Syph.* **57** (1948) 35.

During the war approximately 8,000 specimens of skin were received at the Army Institute of Pathology for histologic consultation. The principal sources of confusion in histologic diagnosis are described, and, when indicated, the distinguishing histologic criteria are discussed. Of the total, 35 were of leprosy, most of them histologically of the lepromatous type; only two were tuberculoid, requiring differentiation from nodular syphilids, tuberculosis and sarcoid. This differentiation is made difficult because of the dearth of Hansen's bacilli in the tuberculoid type. It is important that technicians know that *M. leprae* is not strongly acid-fast; therefore, sections must be decolorized lightly if leprosy is suspected. This is an excellent article on general histology of skin diseases.

—F. A. JOHANSEN.

SERIAL, A. Opsoninas e *Mycobacterium leprae*. [Opsonins and *Mycobacterium leprae*.] *Rev. brasileira Leprol.* **15** (1947) 237-240.

The author emphasizes the technical difficulties in searching for antibodies for *Mycobacterium leprae*, owing to the failure to obtain cultures of it. By using a bacillus suspension, however, it is possible to perform opsonic tests by the technique of Wright, employing sera of leprosy patients and washed white cells. After incubating, smears are fixed with absolute alcohol and stained by the Ziehl-Neelsen method. Study of sera from 20 cases (10 lepromatous and 10 Nt), disclosed phagocytosis, while normal sera used as controls gave negative results.—[From abstract in *Excerpta Med.* **3** (1949) 33.]

DHARMENDRA & SEN, N. Erythrocyte sedimentation test not necessary for regulating treatment with Hydnocarpus remedies. *Lep. India* **19** (1947) 128-130.

For this inquiry there were selected 40 representative cases, 25 neural and 15 lepromatous. The initial sedimentation readings were less than 20 in 14 (56%) of the neural cases, and more than 20 in 9 (60%) of the lepromatous ones. Considering the variations of the index seen during the period of observation, the fact that the dosage of the oil used was based

entirely on clinical factors—the sedimentation findings being ignored with no evident untoward result—and other things, the authors conclude that for regulating the dose of hydnocarpus oil it is not necessary to take the results of this test into consideration; that treatment can be regulated by the clinical condition of the patient, and that the index does not provide any additional information. —H. W. W.

- MONTESTRUC, E. & CAUBET, P. Les groupes sanguins chez les lepreux; repartition des types sérologiques et étude du phénomène d'agglutination du groupe O. [The blood groups of leprosy patients; distribution of serological types and study of the agglutination of type O.] Arch. Inst. Pasteur (Martinique) 1 (1948) 3-8.

This report is of 555 tests of the agglutination reactions of 65 leprosy patients belonging to all of the serological types and affected with all forms of the disease, and of 15 healthy subjects of all serological types, done with 12 sera of leprosy patients of type O. It is concluded, first, that the serological type of the individual is not affected by leprosy; also that the sera of type O persons with leprosy behave entirely normally with respect to the red cells of the same subjects and of other leprosy persons and healthy ones.—[From authors' summary, supplied by H. Floch.]

- AZULAY, R. D. Estudo das intradermo-reações pelo 2-4 dinitrochlorobenzeno e pela lepromina. [A comparative study of the intradermal reactions to lepromin and 2-4-dinitrochlorobenzene.] An. brasileiros Dermat. Sif. 23 (1948) 267-272.

An attempt was made to confirm the work of certain authors who have described an intradermal test made with 2-4-dinitrochlorobenzene which would have the same value as the lepromin test. Tests were made with: 2-4-dinitrochlorobenzene in water (1:1,000), the same compound in acetone (1:1,000), and with acetone alone. The experiment was made on 185 persons (105 lepromatous, 32 tuberculoid, 17 uncharacteristic and 46 normal persons). The results did not confirm the claims referred to. In watery solution the substance gave no positive reaction, early or late. The acetone solution and the acetone alone gave the same type of reaction—necrosis—in both lepromin-negative and lepromin-positive persons. It is concluded that 2-4-dinitrochlorobenzene has no value as a test substance in leprosy.

—AUTHOR'S ABSTRACT.

- AZULAY, R. D. A ação do BCG sobre a reação lepromínica. [The effect of BCG on lepromin reactivity.] O Hosp. 34 (1948) 853-856.

In order to determine the influence of immunization by BCG on the skin reactivity to lepromin, 82 children in the Preventório Santa Maria were tested with bacillary lepromin (1:1,000) and tuberculin (Mantoux, up to 1:50); photofluorography of the chest was also done. Out of this group there were selected 15 children who gave negative reactions to both antigens and whose chest pictures were normal, and each was given a dose of 100 mgm. of BCG by mouth. Tested again two months later, only 3 of them were still negative to tuberculin, and only 3—they being the same individuals—were still negative for the late lepromin reaction. With respect to the early lepromin reaction, 1 of these 3 was negative and the other 2 were doubtful; 2 others with doubtful early reactions were positive for the late one. There was no positive late reaction without at least a doubtful early response. In two instances the reading of the late reaction

was 3+ (i.e., with necrosis). A control group of 8 children who had been negative to lepromin in the first test were submitted to a second lepromin test at the same time as the others, to determine if the repeated injections without BCG would result in positivity; all of them remained negative. The number of children in this experiment is small but the results are very suggestive, especially since other authors have already shown the same effect of BCG with regard to the lepromin reaction. If a positive reaction is regarded as an index of resistance to the leprosy infection, it would be desirable if this experiment should be repeated among contacts in order to give, later on, a better idea regarding the possibilities of BCG as an element in the prophylaxis of leprosy.

—AUTHOR'S ABSTRACT.

BUDIANSKY, E. Comportamento da alergia tuberculínica em filhos de leprosos, após calmetização. [Behavior of tuberculin allergy in children of leprosy patients after BCG immunization.] *Rev. brasileira Leprol.* **17** (1949) 27-30.

The tuberculin allergy in Mitsuda-positive children of leprosy parents appears to be the same—causes of error excepted—as in a group of the common population. There is not, then, any group cosensitization phenomenon due to previous intervention on the part of the Hansen bacillus. Tuberculin allergization by BCG is more temporary (*mais fugaz*) in children of leprosy parents previously sensitized with the Hansen bacillus than in a group of the ordinary population, under similar conditions. Previously induced lepromin allergy, far from favoring the tuberculin allergy, creates in the organism a certain anergizing effect which is only demonstrable when one deals with a tuberculin allergy of definite intensity such as that developed by BCG.—[From the author's conclusions.]

DE FARIA, J. L. Valor do método de Faraco para coloração do bacilo de Hansen em cortes. [Value of the Faraco method of staining the Hansen bacillus in sections.] *Rev. brasileira Leprol.* **17** (1949) 18-26.

A comparative study of the Ziehl-Neelsen and the Faraco methods for the staining of the Hansen bacillus in paraffin sections has been made. The technique of the latter is as follows: (1) Fix in formalin and embed in paraffin as usual, cut sections 4-6 μ ; (2) remove paraffin with xylol, pass through alcohols and wash in water; (3) treat with liquid vaseline (Merck) deposited on the slide and heated intermittently until vapor arises, then wait until it cools; (4) blot with filter paper until the section becomes opaque; (5) stain with carbol-fuchsin; (6) wash in water; (7) wash in liquid soap, pure or slightly diluted (8) wash in abundant water and pass rapidly through 70% alcohol; (9) wash in water and differentiate in 25% sulfuric acid until the section becomes a clear pink after transfer to water (to be done with care, it being better to leave the section red than too pale); (10) wash in tap water at least 10 minutes; (11) counterstain lightly with methylene blue (preferably bluish-red and not clear blue); (12) alcohol absolute, xylol, neutral balsam. The material used comprised 36 specimens from cases with few bacilli, 8 lepromatous lesions with many bacilli, and the lesions of a large number of Mitsuda reactions. In the first series of 36 specimens, Ziehl-Neelsen gave 10 positives against 14 by Faraco. The latter method also revealed more bacilli in the other materials mentioned. In fact, it is most efficacious in old lepromatous lesions which contain many nonacid-fast bacilli, the acid-fastness of which is restored by the greasing involved in the technique. In material kept embedded in

a paraffin block for 5 years, many acid-fast bacilli had lost their capability of staining with the Ziehl-Neelsen method, whereas the same material kept for the same length of time sectioned and attached to the slide showed no such change. With the Faraco technique even the bacilli of the tissue kept in the block stained normally. It is concluded that the method is the better one. How the oil used produces its effect remains to be learned.—[From author's summary.]

MUIR, E. The virulence of lepra bacilli. *Lep. Rev.* **17** (1946) 5-8.

The author asks: Is the virulence of *M. leprae* variable? Is it greatest when first introduced into regions where the disease was nonexistent, wherein it spreads rapidly as it did in the Hawaiian Islands and in Nauru? Our inability to cultivate it *in vitro* or to reproduce human leprosy in animals makes it difficult experimentally to give a definite reply. He summarizes the work of Fielding in rat leprosy, who found that the virulence of the Stefansky bacillus varies considerably, although he could not see any increase in its virulence. Its virulence in fresh feces is greater than in feces 12 or more months old. If it is difficult to determine the virulence of that bacillus, how much more difficult will it be to determine that of the human one? Nor is it less difficult to prove variability on clinical grounds. In leprosy families we see that some individuals have lepromatous leprosy while others have only the neural form; evidently such differences are not due to differences of virulence of the infecting germ, but of resistance of the individuals. The virulence of other germs may be modified, but the methods used to secure that effect with them cannot be applied in the case of the leprosy bacillus. The reason why the virulence of the leprosy bacillus is considered invariable is its late development and the difficulty of cultivating it outside the human body.—[From abstract in *Fontilles* (1947) 568.]

FIELDING, J. W. Further observations on rat leprosy. *Med. J. Australia* **1** (1946) 681-686.

Further experiments on rat leprosy are recorded in this paper. Light natural infections have been found in the Sydney region in one *Rattus norvegicus* and one *R. rattus*. The author shows that fecal organisms may be responsible for transmission; he found that fecal organisms from leprosy rats are still capable of invading the skin of rats and mice after three years' storage. Rats may become infected from excreta containing acid-fast bacilli in the mud floors of their cages after a few weeks of contact. When removed from infected soil after 72 days, however, such rats may become free from the organisms. Continued inunction with organisms in excreta results in "the production of intracellularity of organisms and of lesions," but there was no evidence of typical maximum intracellularity similar to that observed in leprotic lesions. These results suggest the necessity of superinvasion by highly viable organisms for the production of lesions; also that viability of organisms can be lowered or destroyed by reactive changes (souring) in a feces-soil-water mixture. Simple carbolic acid treatment of the organisms for 2 to 7 days was not sufficient to destroy their viability. Immunization was not obtained by injections of carbolic acid treated organisms. The infection is not enhanced by vitamin B₂ deficiency. [The T.D.B. abstractor comments that the claims made in this and the previous paper (see abstract in *THE JOURNAL* **14** (1946) 183, are based on the

assumption that the acid-fast bacilli found in the excreta of infected human beings and rats are the true causative organisms of leprotic infections.] —[From abstracts in *Trop. Dis. Bull.* **43** (1946) 1154, and *J. American Med. Assoc.* **132** (1946) 178.]

TITLES FROM LA LEPRO

[Dr. Todayashi Tanimura, professor of dermatology and head of the Dermatological Institute of the University of Osaka, and editor of *La Lepro*, has provided the following translations of articles which appeared in the post-war version of that periodical in 1947 and 1948.]

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- TANI, SUEKI. Experimental study of rat leprosy in mice. No. 1. Pathogenicity of rat leprosy.—p. 1.
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the Japanese Leprosy Association*

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