## CURRENT LITERATURE

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

PFISTER, C. R. Neues zur Lepra. [Recent advances in leprosy.] Schweizerisch Med. Wchnschr. **67** (1937) 765-766.

This is a brief review of recent developments, evidently based mostly on the reports of Dutch workers. Subjects discussed include the leprolin test (ascribed to Bargher), epidemiological observations of Thierfeld, the possible role of the clothing louse in transmission, and the studies on rat leprosy of Lampe and his colleagues.—[From abstract in *Arch. f. Schiffs- u. Trop.-Hyg.* **42** (1938) 234.]

HAYTHORNTHWAITE, H. M. Notes on work in a village clinic. Lep. in India **10** (1938) 50-53.

This article describes the work in a simple village leprosy clinic. It points out the poor condition of the people and gives a number of practical tips found useful in such work. — J. LOWE

DIMITRY, T. J. Introduction of leprosy into Louisiana, and the first leper hospitals. New Orleans Med. & Surg. Jour. **90** (1937) 113-119.

This brief historical paper disputes the contention of Blanc and Isadore Dyer that leprosy was introduced into Louisiana by French Acadians from New Brunswick, and puts forward the suggestion that it was brought by the colony founded by John Law in the early days of this State. [In the discussion that followed neither view received much support and the slave trade was blamed.]—[Abstract from *Trop. Dis. Bull.* **35** (1938) 284.]

CANAAN, T. Statistisches und Geschichtliches ueber die Lepra in Palästina. [Statistics and history of leprosy in Palestine.] Arch. f. Schiffs- u. Trop.-Hyg. **41** (1937) 684-690.

This paper deals with the detailed distribution of leprosy cases in Palestine and is mainly of local interest. The leper asylum under DR. CANAAN has for long had accommodation for 100 to 120 cases.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 285.]

DUPUY, L. La situation endémique de la lèpre dans la région désservie par FOREAMI. [The endemic situation of leprosy in the regions controlled by FOREAMI.] Ann. Soc. belge Méd. trop. **17** (1937) 323-330.

During 1935, 3,131 lepers were given treatment in Lower Congo and parts of Kwango. The endemic index of the latter region is 2.5 per mille, of the former 3.5 per mille. There follow details of leprosy distribution, prophylactic measures and treatment. —A. DUBOIS

HEMERYCKX, FR. Rapport sur une mission d'étude de l'Institut Central de la Lèpre à Bamako. [Report on a study visit at the Bamako Central Institute. Bull. Inst. Roy. Col. Belge **8** (1937) 3.

Description of the institution named and of the methods employed there in its antileprosy campaign are given. Intradermal injections of chaulmoogra ethyl esters, bringing about the disappearance of bacilli, causes optimism as regards therapeutic results. The author stresses the necessity for expansion of the cultivation of the chaulmoogra trees in the Belgian Congo, both of the indigenous and imported plants. —A. DUBOIS

LE BIHAN. Note sur la lèpre dans le département du M'Bomou (Afrique équatoriale, française). [Leprosy in French Equatorial Africa.] Ann. Méd. et Pharm. colon. **35** (1937) 988-997.

This note deals with epidemiology and treatment. Inquiries regarding 1,832 cases of leprosy showed direct family antecedents in 1,182. Goitre is very prevalent in the area dealt with, but does not appear to predispose to leprosy. Elephantiasis, however, does, for 70 percent of operation cases were complicated by leprosy and the two diseases are very prevalent in the same areas. Methylene blue had a good effect on pains and the general condition when combined with chaulmoogra treatment. Capsules of hydnocarpus oil orally gave better results than methylene blue alone. An indigenous treatment by violent purgatives and emetics appeared to do some good in spite of their debilitating effects.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 545-546.]

LOWE, J. The leprosy problem in Burma. Lep. in India **10** (1938) 121-131.

This article consists of sections from a larger, unpublished report. The census figures for leprosy, quoted as evidence of the distribution and relative incidence of leprosy, indicate a zone of high incidence running across the middle of Burma, consisting chiefly of the middle dry zone of that country. Studies of the incidence in this dry zone suggested an incidence of 2% or 3% in certain parts. Examinations of school children revealed an incidence varying between nil and 10% and averaging 5.6%, most cases being of N1 type. In the population as a whole, however, the type distribution appeared to be very different, roughly equal numbers of cases of lepromatous and neural types being seen. Conditions in Burmese villages are briefly described, and it is noted that in many of them the isolation of lepers is attempted. The present antileprosy work, leper asylums and colonies, diagnostic and treatment centers are briefly discussed, and the low cost of establishment and maintenance of simple rural leper colonies is noted. It is suggested that from the point of view of control of leprosy in Burma, the most important measure is the development of isolation in colonies and in villages. —AUTHOR'S ABSTRACT

LOWE, J. Preliminary report on an epidemiological survey of leprosy in a typical rural area of West Bengal, Lep. in India **10** (1938) 41-49.

This report concerns an epidemiological survey of a rural area with a population of 10,000 people living in 42 villages. The methods adopted are briefly described. The gross incidence of leprosy in the area is 4.38%, not including 30 cases with suggestive but not definite lesions. Of 438 cases deducted only 80 (18%) were of the cutaneous type, the rest (82%)

neural. Comparison of these figures with those for other parts of the world is regarded as indicating marked regional differences. Findings regarding incidence in different age groups showed a steady increase up to adult life. Data on the age at onset indicated that the great majority of the infections were contracted early in life. The incidence in males was about twice as great as in females at all age periods. The disease tended to be most severe in males. In over 80% of the cases there was definite history of contact, usually with an open case of cutaneous type. In villages or families where open cases existed the disease appears to spread, but not where only closed neural cases were found. Study of the source of infection in 438 cases indicated that in one-third the infection was from near relatives, in one-third from distant relatives (probably due largely to the joint family system), and in the rest from nonrelatives or from unknown sources. A large number apparently contracted the disease from contacts outside the home, and it is considered that such contacts are dangerous in childhood. The findings suggest that when the disease is contracted early in life it is likely to be of more severe form than when contracted later; also that when it is contracted from a house contact it is likely to be more severe than when contracted from outside. Several cases in one family are frequently found. The incidence in children is regarded as an important index of the seriousness of leprosy as a public health problem. It is considered likely that similar studies in other areas may give somewhat different results, since clinical and epidemiological findings appear to vary considerably in different races and countries. —AUTHOR'S ABSTRACT

ROW, R. A note on leprosy work in Java. Lep. in India **10** (1938) 10-12.

An account is given of the administration of Java, the leper asylums there, the leprosy field work and of the Leprosy Research Institute in Batavia. —J. LOWE

HUIZENGA, L. S. Leprosy problem in Matang Hsiang, Jukao Hsien, Kiangsu. Chinese Med. Jour. **3** (1938) 287-289.

This is a report of a survey made in what is considered to be the center of the leprous area from which Shanghai gets about 50% of its leper population. The geography of the area is described and an account is given of the survey, which showed that the presumptive leprosy rate is not less than 3.6 per 1,000. This high incidence occurs in one of the most highly populated sections of the world. —AUTHOR'S ABSTRACT

NAGAI, K. On leprosy survey in Kikaijima. La Lepro **8** (1937) 767-778 (Japanese; English abst. suppl. p. 75).

The author and Hayashi, both of the Kagoshima leprosarium in Kyushu, made in July, 1937, a leprosy survey of Kikaijima, or Kikai Island, a small island (60.5 sq. km.) in the archipelago between Kyushu and Taiwan. They examined 18,236 of the 19,321 inhabitants and found 112 lepers (6 per 1,000), whereas the official census made in 1935 had numbered only 62. Because of the distance from Kyushu (about 780 km.) almost none of the Kikai lepers had ever been sent to the leprosaria and so the disease has been allowed to go unchecked for many years. For this reason the author considers the epidemiological data collected there to

be of special interest with regard to leprosy in Japan as a whole. Sex incidence: 63 males and 49 females, giving an apparent sex ratio of 1.3:1, but because females outnumbered males in the population the actual ratio is 73.6:41.2, more nearly the usual 2:1. Type of disease: L type 32%, N type 52%, and maculosa 15%; of the 17 macular cases 6 showed the typical tuberculoid form. Age curve (Hayashi): higher at the left than in the 1935 census; that is, relatively more younger patients were found. Duration: in the majority of cases 11 to 30 years, showing that a long time has elapsed in the leprosy history of this island. The numbers of lepers in the smaller villages do not parallel the population, the tuberculosis rate, but that of filariasis. A majority of patients suffered from tuberculosis in a city such as Kobe or Osaka and came back home, so its rate has almost no relationship with the sanitary condition of the village, while those of leprosy and filariasis do have. No case of leprous blindness and alopecia leprosa was found, which is in keeping with the climatic theory of Hayashi.—[From author's summary.]

MAEDA, T. Report on leprosy survey and propaganda in Oshima Island. La Lepro 8 (1937) 785-808 (Japanese; English abst. suppl. p. 81).

On Oshima Island, located 38 kilometers south of Kagoshima and notorious for its leprosy, the author and three colleagues from the Kagoshima leprosarium made a survey in a city and five villages. Two years previously it was reported that 214 lepers (130 men and 84 women) were found in 67,000 inhabitants (3.2 per thousand) but with 135 lepers sent to leprosaria, 37 gone elsewhere and 26 dead, only 20 remained. Another 69 have now been found, 39 males and 30 females, over one-fourth of them (27.5%) under 20 years of age. 37% of C (lepromatous) type, about 33% macular. The age curve shows neither the high proportion of young cases as found in the Airu province of Kagoshimaken, which signifies activity of the endemic, nor the low proportion of Kikaijima, where the disease has long been unmolested.—[From author's abstract.]

AGRICOLA, E. The program of the Federal Government for the control of leprosy in Brazil. Rio de Janeiro, 1938, 14 pp. (Separately printed; also to appear in the transactions of the Cairo congress).

The antileprosy campaign in Brazil did not assume the character of a national enterprise until 1935, when on the basis of recommendations by Souza-Araujo a comprehensive plan was adopted. This plan involves the construction of new leprosaria (preferably of the agricultural colony type) and other institutions, and the improvement and adaptation of establishments already existing, the state governments to be aided by the Federal government because the problem is really a national one. The conditions under which aid for the maintenance of lepers is given to the states are outlined. It is proposed ultimately to hospitalize all open cases and all indigents. It is estimated that these constitute 65% of all cases, and that provision for about 24,000 patients is needed, twice as many as are now interned. There were 28 (?) leprosaria of various kinds in Brazil in 1937 (2 of them inaugurated in the 1935-37 period) some of which were small asylums; 14 more were under construction at the beginning of 1938, some of them to be inaugurated that year; and a number of others are planned. In the antileprosy work São Paulo is the outstanding state, and notable

efforts have also been made by Paraná and Minas Geraes. The requirements that have been set up with regard to the location and lay-out of new leprosaria are outlined. —H. W. W.

DE SOUZA-ARAUJO, H. C. La lèpre au Brésil et sa prophylaxie. [Leprosy in Brazil and its prophylaxis.] Bruxelles-méd. (1938) No. 34, June 26.

The author reviews briefly the history of leprosy in Brazil, where it was introduced, since the Indians did not have it, and was recorded in the city of Rio de Janeiro as early as about 1600. The heaviest infection is in the north (Maranhao, Pará, Amazonas and Acre), with an incidence of 4 per thousand; the next most severe focus, in the south (S. Paulo, Paraná, Santa Catherina and R. G. do Sul) has over 1 per thousand; the intermediate region has less. Laws relative to the subject are mentioned, as are antileprosy organizations. Most of the existing leprosaria are mentioned and their locations (28 of them) are shown in a map, previously published [THE JOURNAL **5** (1937) 525]. Those under construction in 1938 (14) are also given. The map indicates the existence of 8 homes for children of lepers ("preventoria") with 6 more under construction. —H. W. W.

DE SOUZA-ARAUJO, H. C. A lepra no Espirito Santo e sua prophylaxia. A "Colonia de Itanhenga"—leprosario modelo. [Leprosy in Espirito Santo and its prophylaxis. The Itanhenga colony, model leprosarium.] Mem. Inst. Oswaldo Cruz **32** (1937) 551-605.

In this lengthy report, illustrated with four maps and 23 plates reproducing 58 photographs, the author sets forth, with characteristically lavish detail, what is known of leprosy in this Brazilian state, the 611 cases that were listed at the end of 1936, the antileprosy organization, and the history of the inception of the single, fine leprosarium which was inaugurated in April, 1937. Other elements of the antileprosy set-up are a "preventorium" for children, a central dispensary at Victoria and eight branch dispensaries mostly in the southern part of the state, and six "postos de vigilancia" in the west and north. The Itanhenga Colony, built under the supervision of Dr. Pedro Fontes, chief of the Inspectoria de Prophylaxia da Lepra of the state, in Caraicica municipality, 14 kilometers from Victoria, with both Federal and local funds, has accommodations for about 400 patients; previous to its inauguration lepers had been kept on an island in the river. The entire area, totalling 1,200 hectares, is divided into three units: one of 665 hectares for the actual leprosarium, one of 200 hectares for the preventorium, and one of 335 hectares which is reserved for released patients who may wish to settle there in the future. The excellence of this new institution and its equipment are shown by the illustrations.

—H. W. W.

PORTUGAL, H. Notas epidemiológicas sobre a lepra no Distrito Federal (1934 a 1936). [Leprosy in the Federal District of Rio de Janeiro, 1934-36.] Arq. Hig. **7** (1937) 277-294.

This is an epidemiological study of 873 cases of leprosy. The heaviest incidence was in the 20-40 year group (39%). Males and females were in almost equal numbers in 1934, but in the two subsequent years males predominated and altogether the ratio was 1.2:1. In 146 cases, or 16.7%

there was a history of contact with other lepers, but family contact was traceable in only 11%. There was conjugal infection in no less than 9.2%. The period of incubation, worked out in 59 cases, gave an average of just under 5 years. Lepromatous and mixed cases constituted 53 to 66% of the cases in different groups.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 284-285.]

DAS, N. N. A note on accidental transmission of leprosy. Lep. in India **10** (1938) 151-152.

The case is recorded of a doctor who worked in a leprosy institution for 32 years, and who suffered a slight abrasion of the leg from the hand of one of the patients. Thirty years later a depigmented anesthetic patch appeared at the site of that injury. This patch has gradually spread, but fourteen years after its appearance there is still no other definite lesion on the body. The patient is now 75 years old. It is considered possible but not certain that the trauma caused the transmission of the infection.

—J. LOWE

IKEJIRI, S. Psychological study of lepers. 2. Mental state of lepers in a great asylum. La Lepro **8** (1937) 743-766 (Japanese; English abst. suppl. p. 73).

This second report on a study of the mental state of lepers deals with 1,000 patients in the Zensei asylum, Tokyo. The test of Awaji was used, consisting of 50 questions to be answered, Yes or No. In general, the patients showed a slight tendency to introspection, though within normal limits. No distinction based on type of case was found, though the more severe cases showed a greater tendency to introspection than milder ones, observed more plainly in males than in females. Changes due to age are like those that occur in healthy people, but lepers with the onset before 20 years of age, especially before 10, show a greater tendency than the others. Extraversion is maintained for several years after the appearance of symptoms, longer in those who enter an asylum within the first year than in those who go later. Of disturbing conditions that occur, such as blindness, amputations and tracheotomy, only the last drives the mental state of patient markedly into introspection. No differences were found between the four different religious groups.—[From author's abstract.]

HUIZENGA, L. S. The extent of functional nasal disturbances in leprosy. Urol. & Cutan. Rev. **41** (1937) 796-799.

Quoting Block to the effect that the Ebers papyrus mentions the nasal symptoms of leprosy, and going into less pertinent ancient history, the author reports his findings regarding the sense of smell in leprous patients and the odor that emanates from them, as observed in 100 early and only moderately advanced clinic cases. The anatomical and physiological changes found are discussed, and it is concluded that the percentage of cases suffering from some leprous nasal lesion is very high; that the frequency of disturbance of the physiological functions varies, those depending upon the superficial nerves and tissues suffering most, but there is no special change in the sense of smell; and that leprosy has a characteristic odor, recognized by the patient himself, not due to foul breath or open ulcers but resulting from faulty perspiration metabolism.

—H. W. W.

RADNA, R. Sur la lipase du serum de lépreux. [Lipase in the sera of lepers.] Ann. Soc. belge Méd. trop. **18** (1938) 233-236.

Employing the method of Rona and Michaelis (stalagmometry of tributyrine) the author found that blood lipase is lowered in advanced leprosy and increased under the influence of treatment, at least in favorable cases. Thus the determination is of prognostic value. —A. DUBOIS

TISSEUIL, J. Différenciation par greffes dermo-épidermiques des différentes zones des taches de lèpre tuberculoide. [Differentiation by skin grafts of the different zones of the tuberculoid leprous macules.] Bull. Soc. Path. exot. **31** (1938) 696-698.

From a tuberculoid macule a graft was taken from the zone of extension and implanted in the healthy skin at a distance, after removing from that place another graft which was put in the space left by the first one. A similar exchange was made with a graft from the center of the lesion and one from the zone of extension. The healthy graft put into the active zone was invaded by the leprous process. The infected one put into the center (immune area) became healed. The infected one put into the healthy skin contaminated the latter. [No mention is made of histological examinations.] ET. BURNET

VAN BREUSEGHEM, R. Contribution au diagnostic de la lèpre. L'examen du mucus nasal. [Contribution to the diagnosis of leprosy; examination of the nasal mucus.] Ann. Soc. belge Méd. trop. **18** (1938) 291-292.

Of 132 untreated lepers examined, the nasal mucus of 40% was positive, but only 20% of 83 treated patients were positive. None of the healthy subjects in the same region that were examined showed acid-fast bacilli in the nose. [The number of examinations is not given.] One must examine both nostrils, as sometimes bacilli are found on one side only; that happened in 70% of the positive cases. Because it is frequently the case that when both sides are positive the numbers of bacilli found are very different, it is possible that the negative findings on one side may in reality be due to a greater rarity of the bacilli rather than to its total absence. A. DUBOIS

DUBOIS, A., DUPONT, A. CONZEMIUS, E. AND DEGOTTE, I. L'histodiagnostic dans le dépistage de la lèpre débutante. [Histo-diagnosis as a help in the detection of early leprosy.] Ann. Soc. belge Méd. trop. **17** (1937) 307-322.

The authors sought to learn whether the histological, rather than bacteriological examination, and such certain clinical signs as anesthesia, etc., would permit the diagnosis of leprous macules. They examined 26 biopsy specimens from leprosy cases of various types, and 50 specimens from persons seen during a census and classified as suspicious and slightly suspicious. They found that this examination gives valuable corroboration of the diagnosis, especially in neural cases, in showing the tuberculoid or sarcoid structure. Though that condition is not specific to leprosy, it is a sign worth noting. In early cases, however, the lesions are often so vague (perivascular small-cell infiltration) that no conclusion can be reached. Lepers too, sometimes show banal infiltrations which might be mistaken for ter-

tiary yaws or skin filariasis lesions. [See also summary of similar article presented at the Cairo meeting, THE JOURNAL **6** (1938) 441.]

—AUTHORS' ABSTRACT

LOWE, J. A note on the classification of cases of leprosy. Lep. in India **10** (1939) 3-6.

The opinion is expressed that "tuberculoid" skin lesions are manifestations of the symptom-complex described as "neural" by the Manila Conference, and that cases showing these lesions should be classified as such. It is pointed out that smears from such lesions occasionally show bacilli in considerable numbers. Tuberculoid lesions are found, not only in the skin lesions of neural leprosy but also in the nerve trunks. The opinion is expressed that tuberculoid changes are characteristic, not merely of one subtype of neural leprosy, but of neural leprosy of all kinds, whether the lesions are in the skin, cutaneous nerve, or the nerve trunks. These findings are considered as justification on pathological grounds of the clinical classification of leprosy into "cutaneous" and "neural" types. A clinical subtyping of neural cases into "macular" and "anesthetic" groups is advocated. —AUTHOR'S ABSTRACT

RYRIE, G. A. The classification of leprosy. Lep. Rev. **9** (1938) 20-24.

Ryrie offers, with an eye to the Cairo meeting [about to be held when this paper appeared], certain suggestions for modification of the Leonard Wood Memorial Conference classification, stressing the fact that accurate classification is of vital importance in assessing the results of treatment, because results of treatment vary tremendously according to the type of case treated. He points out, pungently, that many of the discordant views regarding the value of various treatments are due to the unwitting use of different kinds of cases by different workers. While there are a number of causes for the confusion on this matter, the most important element is the lack of a clear means of describing the type of case experimented on. He outlines a classification of a kind which he considers not only necessary for clarity but essential for coordinated progress in therapy. —[From abstract in *Lep. in India* **10** (1938) 65.]

BALIÑA, P. L. AND BASOMBRIO, G. Classification des formes cliniques de lèpre. [Classification of the clinical forms of leprosy.] Rev. Brasileira Leprol. **6** (1938) 225-228.

This is a brief statement, without argument or discussion, of the classification used by the authors and presented at the Cairo meeting [without authors' summary; see THE JOURNAL **6** (1938) 445]. No less than five "groups" are set up, as follows: (1) Cutaneous (C) or lepromatous (L), habitually positive bacteriologically, with lesions of lepromatous nature. (2) Maculo-anesthetic (Ma), skin lesions macular and histologically neither lepromatous nor tuberculoid, but showing only discrete perivascular infiltration; bacteriologically negative. (3) Tuberculoid (Td), skin lesions either macular or infiltrated and of tuberculoid histology. (4) Neural (N), "pure," without maculo-anesthetic skin lesions. (5) Combined cases (CN, MaN, etc.). The first four groups would be each divided into three grades according to the degree of advancement. —H. W. W.

LOWE, J. A note on racial variations in leprosy with particular reference to Indian and Burmese races. Lep. in India **10** (1938) 132-139; also Indian Med. Gaz. **73** (1938) 591-595.

This article compares leprosy in Burmans in Burma and in Indians in Burma and elsewhere. In the former the proportion of serious (lepromatous) cases is about 50%, compared with about 25% in Indians. In Burmans the mild neural cases are largely confined to children, while in Indians they are found at all ages. It is concluded that leprosy in Burmans is more rapidly progressive and more serious and infectious than in Indians. Definitely thickened tuberculoid lesions, nerve abscesses, etc., are most common in Indians. In Burmans there are more commonly seen cases which appear to be intermediate between the typical tuberculoid and lepromatous. In Indians lepromatous lesions are very commonly diffuse, while in Burmans they are much more often circumscribed and definitely nodular. The differences between leprosy in Indians and leprosy in Burmans are attributed to a lower degree of immunity of the latter race.

—AUTHOR'S ABSTRACT

COCHRANE, R. G. AND RAJAGOPALAN, G. Preliminary note on a study of childhood leprosy at the Silver Jubilee Children's clinic, Saidapet. Lep. in India **10** (1938) 54-61.

This article describes the preliminary work and observations in a special clinic for the study of leprosy in childhood. In a survey of 1,671 school children there were found 43 with definite lesions (2.6%) and 65 with suspicious ones. Other cases were detected in the clinic, and there are now 307 children under observation or treatment, classified as follows: simple neural, 119; tuberculoid (chiefly minor), 81; "precutaneous," 19; and cutaneous, 36; in 42 the lesions were indefinite. About two-thirds of the cases (including all of the indefinite suspected ones) are under observation only, the rest being under treatment. Males were more numerous than females, particularly in the cutaneous group. Attempts to trace the source of infection in 163 cases showed an open case in the same house in 93. There were more such contacts in the precutaneous cases (100%) and the cutaneous cases (87.5%) than in the simple neural and tuberculoid cases (50% and 42%). More than one infected child was found in 89 out of 208 houses visited. A house to house survey is now being undertaken.

—J. LOWE

LOWE, J. L. AND CHATTERJI, S. N. Extensive ulceration of the skin in leprosy. Lep. in India **10** (1938) 7-9.

Two cases are reported which showed extensive scarring of the skin following ulceration several years previously. The patients at present also show extensive anesthesia, trophic lesions and deformity. In one of the cases acid-fast bacilli had been found in the ulcers. It is considered probable that the extensive skin ulceration was of the nature of an ulcerative form of tuberculoid leprosy. It is considered that lazarine leprosy and bullous leprosy as described in South America, the lazarine leprosy as described by Rodriguez, cases with extensive ulceration as seen in Malaya, and the present cases reported in India are probably different degrees of the same pathological process, namely, tuberculoid lesions with ulceration.

—AUTHORS' ABSTRACT

TISSEUIL, J. Contribution a l'étude de la réaction lépreuse. [Contribution to the study of lepra reaction.] Bull. Soc. Path. exot. **31** (1938) 469-471.

[This paper was sent to the Cairo meeting and will appear in its transactions. For the author's summary see THE JOURNAL **6** (1938) 428.]

TISSEUIL, J. Contribution a l'étude du traitement de la réaction lépreuse. [Contribution to the study of lepra reaction and of its treatment.] Bull. Soc. Path. exot. **31** (1938) 465-468.

The author treats the condition by means of intravenous injections, usually twice a week, of diverse solutions: glucose, 40% in distilled water; sodium chloride solutions, 4 or 9 or 20%; methylene blue, 1%; and even simple distilled water. Such injections have interrupted the reaction in the greater part of his cases. —ET. BURNET

VALLE, S. Prophylaxie de la cécité au cours de la lèpre. [Prevention of blindness in leprosy.] Arch. Ophthal. **1** (1937) 865-880.

The author, a Brazil eye specialist, finds that it is impossible to prevent the insidious development of the affections of the eye which occur in the course of leprosy and which often cause blindness. Chaulmoogra preparations, unfortunately, are liable to provoke dangerous reactions in the eye, so they should be avoided when there are such complications. The anterior segment of the eye is the seat of leprous disease. Invasion may occur from affection of the neighboring parts, such as the eyebrows and eyelids, and therefore the author advocates cauterization, peritomy or iridectomy to prevent such invasion. Copper and gold salts may be of value, and the author also endorses the trypan blue treatment of Muir and Chatterji.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 549-550.]

BARDENAT, E. Les irido-cyclitis lépreuses. [The leprotic forms of irido-cyclitis.] Thése. Alger, 1937.

The frequency of iritis in relation to the other leprotic affections of the eye is estimated to be from 30% to 70%; such conditions may be observed at any stage of the evolution of the disease. The diffuse forms of iritis (serous or atrophic) are to be distinguished from the proliferative forms (solitary nodules, or miliary form). The complication is a serious one since it leads to blindness in over 90% of cases, usually through hypertonia and phthisis bulbi, less frequently through hypertonia. Its origin is held to be endogenous by most writers, though others consider it to be exogenous. Three instances are found in the literature of diagnosis of the condition before leprosy had been recognized in the case. The usual treatment drugs are mentioned.—[From abstract in *Vida Nueva* **42** (1938) 408.]

HARRISON, G. T. A case of leprosy in a British soldier. Jour. Roy. Army Med. Corps **71** (1938) 194-199.

The patient was born in the Andaman Islands and lived in various parts of India until he enlisted, in 1930, at the age of 19. Six years later he was transferred to Palestine, after some months in England. There then appeared an eruption which led him to report ill, but he was not inconvenienced as regards duty and it was not until more than a year later that the diagnosis of leprosy was made, in England. Though the face was nodular, its color was normal, the ears were not thickened and

the eyebrows were intact. The body and extremities were covered with brown macules which on palpation were found to be nodular, and the voice was husky from involvement of the throat, but there was extremely little evidence of nerve involvement. Of interest with respect to treatment, the patient had been given six weekly injections, each of 10 cc., of his own blood; this was followed by considerable reduction of the nodular eruption. —J. W. LINDSAY

BARÉ, J. Sur le traitement de la lèpre par les injections intraveineuses d'huile de chaulmoogra neutralisée. [Treatment by intravenous injections of neutralized chaulmoogra oil.] Bull. Soc. Path. exot. **31** (1938) 341-345.

Four cases in New Caledonia were treated with neutralized chaulmoogra given intravenously, twice a week, 2 cc. per dose. Notable improvement resulted, but in two of the cases strong febrile reactions occurred in the hours following injection. It is necessary to ascertain the sensitivity of each case and to modify the dose accordingly. —ET. BURNET

TISSEUIL, J., GUILHAUMON, F. AND RIVOALEN, P. Etude comparée de l'action thérapeutique des huiles neutres d'arachides et de chaulmoogra utilisées en injection intradermique. [Comparative study of the therapeutic action of neutral peanut and chaulmoogra oils given intradermally.] Bull. Soc. Path. exot. **31** (1938) 585-587.

In two cases with large macules intradermal injections of peanut oil gave a temporary favorable effect, for about a month, whereas *H. wightiana* oil had a very marked and enduring effect. —ET. BURNET

TISSEUIL, J. AND RIVOALEN, P. Action du beurre de Gorli par voie intradermique dans les lèpres tuberculoides. [Effect of butter of Gorli given intradermally in tuberculoid leprosy.] Bull. Soc. Path. exot. **31** (1938) 591-592.

Gorli butter, mixed 40% in olive oil and injected intradermally in tuberculoid lesions, had a slow but certain effect that was sometimes masked by reactions and spontaneous regressions. —ET. BURNET

NAITO, K. The extraction of active principle from chaulmoogra water emulsion. La Lepro **8** (1937) 819-823 (Japanese; English abst. suppl. p. 85).

In a previous paper the author reported demonstration of a leprous serotoxin and showed that a watery extraction of chaulmoogra oil has a remarkable detoxifying or neutralizing action in the test tube as well as in leprosy patients, and described in detail the method of preparing the water extraction. The experiments have been repeated and the same results have been obtained. The theoretical consideration of extraction of the active principle of chaulmoogra oil in water emulsion is discussed.—[From author's summary.]

DE, N. K. Studies in the factors affecting the oxidation of hydnocarpus oil. Lep. in India **10** (1938) 76-82.

The unsatisfactory nature of commercial supplies of hydnocarpus oil is commented on, and the methods of testing oil for acidity, peroxides and optical rotations are described. By careful selection of seeds, careful

preparation and storage of the oil, and avoidance of long storage it has been possible in the laboratory to prepare superior oils, the specific rotation being between 57.5 and 58, the peroxide value below 1, and percentage acidity below 1. A study was made of the harmful effects of exposure to light and air and of the presence in the oil of water and foreign particles. All of these factors acting individually (particularly exposure to air) had some effect on the oil, but acting together they had a more marked effect, producing a lowering in specific rotation and an increase in the oxidation products. The best single test for the suitability of oil for injection was the test for specific rotation. —J. LOWE

ROY, A. T. Apparatus for leprosy clinic. Indian Med. Gaz. **72** (1937) 544-545.

This is a short paper describing and illustrating apparatus for keeping hydnocarpus oil at a constant temperature, from which it can be drawn into syringes for injection. [Abstract from *Trop. Dis. Bull.* **35** (1938) 297.]

RADNA, R. Contribution à la question du traitement de la lèpre. (Première note). [Contribution to the question of leprosy treatment. I.] Ann. Soc. belge Méd. trop. **18** (1938) 225-232.

Using Loewenstein's vaccine, the author has obtained good results, either when it was the sole treatment (20 patients) or was associated with alepol or graumanyl (120 patients). The bacilli in this vaccine were obtained from leper blood or tissues, in Loewenstein's laboratory. —A. DUBOIS

DE LOIOLA PEREIRA, O. A vacina de Vaudremer na lepra. [Vaudremer's vaccine in the treatment of leprosy.] Bol. Geral Med. e Farm. **19** (1937) 230-237.

The results of the use of a vaccine of Vaudremer's organism in 11 cases are analysed. The injections were well tolerated, and in no instance was any febrile reaction produced. Some patients appeared to benefit, in particular those with edematous infiltration of the hands and feet with rise of temperature and general debility. Early nervous lesions seemed to improve. When there are ocular lesions great caution is needed, as they may become worse under the treatment. The vaccine has no effect on leprotic nodules, nor any definite action on ulcerative lesions, neuralgias and sensory disturbances.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 299.]

SCHUJMAN, S. El tratamiento de las algias leprosas por las inyecciones intradérmicas de histamina. [The treatment of leprous algias by intradermal injections of histamine.] Semana Méd. **45** (1938) 436-438.

The author has treated leprous algias by intradermal injections of 0.5 cc. of 1:1000 histamine, distributed in small papules along the course of the painful nerves. The method is considered effective and harmless. The quietening effects on the pain are immediate, prolonged and frequently permanent. —G. BASOMBRIO

GASS, H. H. Cobra venom in leprous neuritis. Lep. in India **10** (1938) 37-40.

The cobra venom used was standardized in "mouse units" and the dose used was from 1 to 5 units, although 10 units can be given. Nearly

all of the cases of neuritis treated were chronic, only one acute case being available. The immediate results were: marked improvement (75% or more relief) in 17 cases, considerable improvement (50% to 75% relief) in 15, slight improvement in 2 and none in 1. Relapse followed in 9 cases after a period of two months without treatment. In one case symptoms were worse than before the treatment; the Kahn test was strongly positive and treatment by arsenicals and protein shock (injections of sterile milk) was followed by relief. Usually the first relief was noted after the 0.3 cc. dose, the maximum effect after the 0.5 cc. dose. No toxic symptoms attributable to the venom were noticed, but in two cases lepra reaction occurred after several injections. The author believes that cobra venom has a definite place in the treatment of leprous neuritis, it having given far better results than anything else that he had tried. —J. Lowe

Radna, R. Sur le traitement des algies lépreuses par le cobranyl. [Cobranyl treatment of leprotic neuralgia.] Ann. Soc. belge Méd. trop. **18** (1938) 73-74.

Meurice cobranyl, after 2 or 3 injections, proved beneficial in cases of leprotic neuralgia. The treatment was well tolerated. —A. Dubois

Berg and Nodenot. Observation d'un cas de lèpre cutanéo-muqueuse traitée et améliorée par le bleu de méthylène. [A case of cutaneo-mucous leprosy improved by methylene blue.] Bull. Soc. Path. exot. **31** (1938) 92-94.

The patient, aged 38, received in a first period of 3 months 780 cc. of methylene blue and also chaulmoogra oil by mouth (45 drops per day.) There was no coloration of the lesions; the lepromas decreased, the color of the macules diminished. Sensation in the lesions reappeared, though very incompletely. The nasal mucus became negative. After a second period about half as long the patient was almost completely cleared up, sensibility to heat was normal though that to pricking was diminished. Bacteriological examinations, including that of a biopsy specimen from a macule, were negative. Calcium, given as in cachets of carbonate and phosphate, seemed to have a favorable effect. —Et. Burnet

Coelho, J. T. Fluoresceina na lepra. [Fluorescein in leprosy.] Rev. med. Minas **5** (1937) 9.

The use of fluorescein is not advised, because of the danger of intoxication which is produced more quickly than the results sought for.—[Abstract from *Bull. Inst. Pasteur* **36** (1938) 872.]

Wayson, N. E. Cutaneous leprosy. Presumable cure by surgical removal of a lesion. Arch. Dermat. & Syph. **36** (1937) 1185-1186.

The patient was a French priest, aged 61, who had worked for eight years in the Kalaupapa leper settlement of Hawaii, and had been notoriously careless in cleansing his hands after contact with leper patients, and he habitually rubbed the tips of his fingers on the central portion of his forehead when reading. Three typical leprous nodules about 1 cm. in diameter developed at this site and contained acid-fast bacilli. They were removed several weeks after their appearance, and showed clumps of acid-fast bacteria. As four years have since elapsed without the appearance of any further manifestations it would appear that he may be cured.

Reference is made to a similar case of McCoy in a child operated on sixteen years ago, and the interesting information is added that this patient has also remained free from further symptoms. The author recognizes that it is too early in the case now reported to regard the cure as permanent.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 300.]

RADNA, R. Note sur la réaction de Mitsuda chez des sujets indemnes de lèpre. [Mitsuda reaction in nonleper subjects.] Ann. Soc. belge Méd. trop. **18** (1938) 63-72.

The Mitsuda reaction was negative in 98% of 108 lepromatous type lepers with positive bacillemia, and in 59% of 22 lepers of that type but without bacillemia. There seemed to be positive correlation between bacillemia and the negative Mitsuda reaction in 10 neural type cases. After a year's treatment the reaction often became positive, this coinciding with the disappearance of bacilli and with general improvement. Out of 100 nonleper subjects with negative tuberculin cutireaction, 94 were positive to the Mitsuda reaction. However, of 25 cachectic nonlepers 24 gave negative reactions. The Mitsuda reaction is one of the tissues to the presence of irritating substances, rather than an allergic reaction. —A. DUBOIS

SPEIGHT, A. Observation on the serum-formation reaction in leprosy. Lep. in India **10** (1938) 117-119.

Hope Gill's modification of the serum formalin test was used, results being recorded up to 24 hours; gel formation within 3 minutes is recorded as 3+, within 1 hour as 2+, and within 24 hours as 1+. The test was done in 100 cases of leprosy and 50 nonleprous cases. Of the former, 55% gave moderately or weakly positive results, while of the control group only 4% gave such results. Of the leprosy cases of lepromatous type, 63% gave positive results, while of neural type 40% were positive. In advanced cases of both types the percentage of positive results was higher than in the early cases. A parallel series of sedimentation tests showed a tendency towards a higher sedimentation index in the cases giving positive results in the serum formalin test. —J. LOWE

GASPERINI, G. C. Considerazioni nella lebra. Sulla gelificazione del siero di sangue ed il comportamento di esso dopo filtrazione di frent alle razione preconizzate como specifiche. [The gelification of leprous serum and the behavior after filtration, in relation to the supposedly specific reactions.] Arch. italiano Sci. Med. Col. e Paras. **18** (1937) 412-418.

Upon filtration through collodion the sera of lepers lose their property of being solidified by formalin and by acetic acid, and also that of accelerating the sedimentation of formolized red cells (Rubino-Marchoux technique).—[Abstract from *Bull. Inst. Pasteur* **36** (1938) 864.]

FRANCO, R., APARICIO, J., ESGUERRA, A. AND ALMANZAR, P. J. Los trabajos del Profesor Federico Lleras Acosta, sobre lepra. [The work on leprosy of Professor Federico Lleras Acosta.] Rev. Fac. Med. (Bogotá) **6** (1938) 569-574.

The authors comprised a commission appointed to report to the Academy of Medicine on the status of the leprosy studies of Lleras, who died in 1938 on his way to the Cairo congress. They review the status of the

work of cultivating the bacillus and inoculating animals, and also the serological work, submitting ten pages of general bibliography to these subjects. They conclude with the statements, first, that the investigations of Lleras are of high scientific value and should be continued, and, second, that his serological reaction may be considered the most important part of his work and offers possibilities of extraordinary interest in its application in the diagnosis and prognosis of leprosy. —H. W. W.

TOVAR DAZA, J. La reacción de la leprolina Lleras. [The Lleras leprolin reaction.] Thesis, 1936, Faculty of Medicine, Bogotá.

The author (now chief of the laboratory of the Agua de Dios leprosarium) experimented in 1936 with a "leprolin" made by Lleras from his culture as tuberculin is made—condensation of the filtrate of glycerine-broth cultures. In healthy individuals 0.1 cc. given intradermally (results with the von Pirquet technique having proved unsatisfactory) caused an immediate reddening and in 24 hours, usually, a vesicle surrounded by a red zone that might be as much as 6 cm. in diameter. In the leper this focal reaction usually did not exceed 1 cm. and was often less. Readings were not made until after 48 hours; the maximum was not reached until the 3rd day, after which the acute process subsided and was over by the 6th or 7th day. Occasionally there occurred a later, chronic reaction in the form of a subcutaneous nodule. Results: in 23 healthy persons, 91% positive (i.e., 21 reactions, 20 of them 3+); in 12 arrested cases, 58% positive; in 29 bacteriologically negative cases, 32% positive (i.e., 68% negative); in 48 bacteriologically positive cases, only 19% positive (81% negative). On the other hand, in 15 cases with pulmonary tuberculosis, 73% positive. The author draws a parallel with the Mitsuda test [without, however, noting the differences in the nature of the reaction] and concludes that the Lleras antigen is specific and that the reaction is one of specific immunity, perhaps produced by a toxic body in the bacillus, and that it may be useful to control treatment though for diagnostic work it is less sensitive than the Lleras compliment fixation reaction.

—H. W. W.

PEREIRA, P. C. R. A reação de Lleras Acosta na leprose. (Reação de fixação do complemento com antigeno metilico de bacilos acido-al-cool-resistentes.) [The Lleras-Acosta reaction; complement fixation with the methylic antigen of acid-fast bacilli.] Rev. Brasileira Leprol. **6** (1938) 315-339.

After reviewing the various reactions proposed for diagnosing leprosy, the author reports the results of 391 complement fixation reactions made with the antigen of Lleras Acosta. Positive reactions were obtained as follows: of 120 reactions on bacteriologically positive cases, 97.5%; of 32 on bacteriologically negative cases, 81.5%; of 100 on children of lepers, 4%; of 76 on patients suffering from syphilis and other skin diseases, 18% and of 50 on healthy individuals, 14%. There was a large discrepancy between these observations and those of Lleras. The Witebsky reaction was also carried out with the cases of skin disease that had given positive reactions, and the author concludes that, while it is almost as sensitive as that of Lleras, it is more specific. No other conclusions are drawn from this work, which it is expected will be continued.—[From author's summary.]

SAENZ, A. Sur les caractères d'un bacille acid-résistant isolé par F. Lleras du sang de malades atteints de lèpre. [The acid-fast bacillus isolated by Lleras from the blood of lepers.] Bull Acad. Méd. **119** (1938) 579-583.

The bacillus which Lleras Acosta isolated by the Loewenstein method from the blood of 2% to 3% of cases examined, and which he believed to be the leprosy bacillus, the author finds possesses the same staining and cultural characteristics and has the same effects on inoculated animals as the saprophytic paratuberculosis organisms. It particularly resembles an acid-fast bacillus which the author isolated from the tap-water of his laboratory, when he examined it as a control on the bacilli isolated from the blood by Loewenstein. It grows very rapidly in the liquid medium of Sauton, producing a very abundant homogeneous culture, with clouding and a powdery deposit, with acidification of the medium. A "paratuberculin" prepared with the Lleras culture, tested intradermally on 6 lepers, gave the same reactions as a similar preparation from the above-mentioned organism from tap-water; these reactions were not at all comparable with those produced by actual tuberculin. In nonlepers tested (in Paris) it gave nothing, even less than do paratuberculins of the turtle and timothy grass bacilli. The author has not obtained in lepers the specific, positive reaction which Lleras got. [It would be interesting to make the Mitsuda test with the Lleras bacillus, in comparison with the Hansen and Stefansky bacilli.] —ET. BURNET

TISSEUIL, J. Essai d'inoculation de la lèpre humaine au rat d'élevage, par injections quotidiennes pendant un mois. [Attempt to infect laboratory rats with human leprosy by daily injections for a month.] Bull. Soc. Path. exot. **31** (1938) 277-279.

Ten white rats received each day, for 30 consecutive days, subcutaneous injections of a noncentrifuged suspension of human leproma tissue. Reactions (nodules, ulcers) did not appear until after the 20th day. These rats, dead or sacrificed, were examined at different intervals, from the 20th to the 270th day after the last injections. The lesions found, miliary granulations and caseous nodules, were only local reactions containing acid-fast bacilli. The regional lymph nodes were free of them. In two cases passage was made to another series of rats. In these animals, sacrificed after 8 to 9 months, no microscopic lesions were found; smears of the cellular tissue and of the lymph nodes were negative. In summary, there was produced no lesion suggesting a generalization of the leprosy infection. —ET. BURNET

PAPAIOANNOU, A. Recherches sur la culture et la transmission expérimentale à des animaux de laboratoire du bacille lépreux humain et du bacille de Stefansky. [Studies on the cultivation of the bacilli of human and rat leprosy, and on their experimental transmission to laboratory animals.] Bull. Soc. Path. exot. **31** (1938) 582-585.

A human leproma was macerated in physiological saline, at 24° to 34°C. for 15 days. From the fluid (not the solid matter) the author, on a special medium "the composition of which resembles that of lymph" (formula given), obtained a culture, and also generalized infection of rats, white mice and squirrels. The culture was carried on for 18 passages, when it began to degenerate. Similar results were obtained with a leproma

of the Stefansky infection, but in this case the maceration was done in glycerine instead of saline, and it was kept in the refrigerator for more than a year. Even after this long period the glycerine gave a growth on the medium indicated, and caused generalized infection of rats and mice.

—Et. Burnet

Beaudiment, R. and Tivollier, M. Destruction des bacilles de la lèpre déposés sur les linges et les instruments. [Destruction of bacilli on materials and instruments.] Bull. Soc. Path. exot. **31** (1938) 352-357.

The bacilli which remain adhering to the equipment used in the bacteriological examination being an evident cause of errors, the authors have sought a means of destroying them, or at least of destroying their acid-fast property, without injuring the materials and instruments treated. They have met with success only with soda, boiling the objects for 15 minutes in a 2% solution; potassium in the same concentration alters fabrics. The study was made with the Stefansky bacillus but the results are applicable to the Hansen bacillus, the acid-fastness of which is less strong.

—Et. Burnet

Anderson, R. J., Reeves, R. E. and Crowder, J. A. The chemistry of the lipids of tubercle bacilli. LII. The composition of the acetone-soluble fat of *Bacillus leprae*. Jour. Biol. Chem. **121** (1937) 669-684.

This technical chemical paper is best summarized in the authors' own words: 1. An investigation has been made of the chemical composition of the acetone-soluble fat of *Bacillus leprae*. 2. The crude fat was found to be a complex mixture of free fatty acids and neutral fat. 3. The neutral fat consisted apparently of fatty acid esters of the disaccharide trehalose. No glycerol could be found. 4. The fatty acids were composed of ordinary solid saturated, optically active, branched chain acids. 5. Three different substances possessing phenolic properties were isolated. 6. The ordinary saturated fatty acids were represented by caproic, myristic, palmitic, stearic, arachidic, behenic, and tetracosanoic acids. Certain new optically active higher acids where also present but could not be definitely identified. 7. Among the unsaturated acids examples of $C_{14}$, $C_{16}$, $C_{18}$, $C_{20}$, $C_{22}$, and apparently $C_{21}$ and $C_{25}$ were found. 8. A series of new dextrorotatory, branched-chain, saturated acids apparently of the $C_{16}$, $C_{19}$, and $C_{22}$ series was isolated. —[Abstract from *Trop. Dis. Bull.* **35** (1938) 294.]

Laidlaw, P. P. Inoculation of human leprosy into Syrian hamster. Lancet **2** (1937) 773, Sept. 25 (correspondence).

Sir Patrick Laidlaw writes to point out that to Balfour-Jones is due the credit of first infecting hamsters with rat lepra bacilli, for he demonstrated sections of infected hamsters before the Royal Society of Medicine on March 3rd, and before the International Congress for Microbiology on July 29th, both in 1936.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 293-294.]

de Souza-Araujo, H. C. A lepra dos ratos. [Rat leprosy.] Memo. Inst. Oswaldo Cruz **33** (1938) 297-318.

The writer reports observations made with three strains of rat leprosy obtained from England (Prof. P. P. Laidlow), France (Prof. E. Marchoux) and Germany (brought to Brazil by Prof. Ficker). The strains from Eng-

land and France were received by air-mail, the journey taking from 7 to 10 days. The Marchoux strain proved to be the least virulent; the Laid-low strain infected 100% of the rats inoculated. With all three strains the formation of typical "globies" (colonies), was demonstrated, contrary to the general opinion that the Stefansky bacillus does not produce that structure. It is believed that bacillemia occurred in a few animals. Bacilli were found in the nasal mucus. Atypical acid-fast bacilli were found in feces of normal rats, and typical Stefansky bacilli in the feces of leprous rats. Transmission by contact was observed, to young mice from mothers infected by eye instillation of leproma emulsion. In the advanced stage of the disease infected rats eliminate by the feces large quantities of Stefansky's bacilli, sometimes in "globies." All attempts to cultivate these three strains have as yet given negative results. —AUTHOR'S ABSTRACT

KUDICKE, R. AND VOLLMAN, H. Gewebekulturversuche mit den Bazillen der Rattenlepra. [Tissue-culture work with the rat leprosy bacillus.] Zentralbl. f. Bakt. I. Abt. Orig. **140** (1937) 293-297.

In tissue cultures the authors observed colonies of the rat leprosy bacillus, as well as numerous organisms within individual cells. They proved to be positive up to 100 days in the case of lepromata and in subcutaneous tissues, and up to 73 days in the case of infected gland tissue. Moreover, under the conditions of the tissue cultures, the organisms remained infective certainly for 22 days, and occasionally, in the case of relatively bacillus-rich tissues, up to 89 to 100 days.—[From abstract in *Trop. Dis. Bull.* **35** (1938) 560.]

DHARMENDRA AND LOWE, J. Attempts to cultivate *M. leprae muris*. Indian Jour. Med. Res. **25** (1938) 835-842.

The authors report on one year's work in which about 2,000 culture tubes and flasks and 800 tissue cultures were seeded, in an attempt to confirm the findings of workers who in recent years have claimed to have cultured the organisms of human and rat leprosy. No conclusive evidence has been obtained of value of a special gaseous environment as recommended by Soule and McKinley, or of multiplication of bacilli in ordinary tissue cultures or minced chick-embryo medium. In cultures of chick leucocytes and of rat bone-marrow, there has been some evidence of multiplication, but it was not verified by subculture. Loewenstein's method of cultivation from the blood gave negative results. Though there seemed to be some multiplication in primary cultures on split-protein medium as recommended by Duval, this was not verified by subcultures.

—AUTHORS' ABSTRACT

PRUDHOMME, R. O. L'acide ascorbique dans la lèpre murine. [Ascorbic acid in rat leprosy.] Compt. rend. Soc. Biol. **126** (1937) 1004-1005.

This short note records estimations of ascorbic acid in rat leprosy lesions. These showed the affected tissues to be very rich in this vitamin, which was present in the supernatant fluid after centrifugating an emulsion of a leproma. There was a nearly constant relationship between the amount in the spleen and in a leproma. Cells nearly destroyed by a mass of the bacilli showed more of the vitamin than normal cells.—[Abstract from *Trop. Dis. Bull.* **35** (1938) 560.]

BERNEY, P. AND TANGUY, Y. Conservation de la vitalité du bacille de Stefansky chez le cobaye. [Retention of vitality of the Stefansky bacillus in a guinea-pig.] Bull. Soc. Path. exot. **31** (1938) 40-42.

A very rich suspension of Stefansky bacilli was injected into guinea-pigs. Removed after 45, 60 and 80 days, the cellular tissue or pus from the point of inoculation was then inoculated into rats. Bacilli contained in the 45-day material thus transferred proved to be virulent, producing lepromas in the 9th month. The 60-day material was also infective, but the formation of lesions was delayed to the 13th month. The results with the 80-day material were not yet known. It is not possible to say whether the production of lesions in the rats was delayed because of diminution of virulence of the bacilli or because of decrease in their numbers. Some rats were inoculated with Stefansky bacilli that had remained in the guinea-pig for 9 months, and 8 months later they were reinoculated with normal bacilli. No evidence of protection against the second infection was seen. —ET. BURNET

MARCHOUX, E. AND CHORINE, V. La muqueuse rectale est perméable au bacille de Stefansky. [The rectal mucosa is permeable to the Stefansky bacillus.] Bull. Soc. Path. exot. **31** (1938) 462-464.

A suspension of the Stefansky bacillus was introduced without lesion, 2 cm., into the rectum. Infection began with the lymph nodes situated along the lumbar aorta and then spread to the mesenteric and inguinal nodes. It took 12 to 18 months for the infection to become generalized. —ET. BURNET

MARCHOUX, E. AND CHORINE, V. Perméabilité de la muqueuse buccale du rat au Bacille de Stefansky. [Permeability of the buccal mucosa of the rat to the Stefansky bacillus.] Bull. Soc. Path. exot. **31** (1938) 580-582.

The bacillus, placed without lesion on the mucosa of the mouth and pharynx, passed very slowly into the submaxillary lymph nodes and secondarily to the deep cervical and the tracheo-bronchial nodes. The mesenteric nodes remained unaffected. It is concluded that the mucosa of the digestive tube of the rat is permeable to the bacillus in all its extent. —ET. BURNET

CHORINE, V. AND BERNY, P. Note sur quelques essais infructueux de traitement de la lèpre murine. [Note on unsuccessful attempts at treatment of rat leprosy.] Bull. Soc Path. exot. **31** (1938) 588-589.

The authors have used the following substances in the attempts to treat rat leprosy that are reported here: red selenium, sodium seleniate, cerium, tungsten, aluminum (metal) and vanadium sulphate. These materials were suspended in olive oil, 10 mgm. per cc., and were administered by subcutaneous injections. Toxicity was slight except for sodium seleniate. There was no therapeutic effect. —ET. BURNET

PRUDHOMME, R. O. Moyen de reconnaître in vitro si le bacille de Stefansky est mort ou vivant. [A means of recognizing *in vitro* if the Stefansky bacillus is dead or living.] Ann. Inst. Pasteur **61** (1938) 512-518.

Suspensions of the Stefansky bacillus (i.e., of a rat leproma) of determined density, washed three times by centrifuging, are placed in contact

with an indicator of oxydo-reduction. After comparison of many indicators o-cresol-indo-2-6-dichlorophenol was selected for the purpose. The bacillary suspensions decolorize the indicator, but those that have been killed by heat, or rendered inactive by 1% formalin or by ultraviolet irradiation for 10 minutes, do not. Testing the wash waters to ascertain if the decolorizing might be due to tissue substance, it was found that the first water causes decolorization but there was no such effect with the water of the third washing, which gave no indication of protein with trichloracetic acid. On the other hand, a first water still caused decolorization, after it was subjected to the treatments that render bacillary suspensions inactive. It is concluded [strangely] that the decolorization of the indicator is due to the vitality of the bacilli, not to traces of tissue substance. It requires some 4,000,000,000 of bacilli to decolorize 0.014 mgm. of the indicator in 24 hours. This technique is said to have confirmed Marchoux's findings by inoculation, namely, that the bacillus is no longer infective after 12 days at 37°C., though it is active after a year in the refrigerator. —Et. Burnet