

## 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.*

LIE, H. P. On leprosy in the Bible. *Acta Derm.-vener.* 18 (1937) 524-545.

In this scholarly discussion of leprosy mentioned in the Bible the author reviews the evidence that "zaraath," the word taken at present to signify leprosy, does not fit with the present-day leprosy, particularly the nodular type. It is remarkable that the Bible should be silent on the nodular feature, which is the most salient characteristic of leprosy. The author believes that the Jews, in their long sojourn in Egypt where leprosy was then presumably endemic, were probably infected with the disease but holds that there are no conclusive proofs in the Bible.

—M. B. L.

DENNEY, O. E. The history of leprosy in Louisiana. *Publ. Health Rep.* 51 (1936) 1029-1034.

There is no evidence that leprosy existed in America before the time of Columbus. The three main sources of its importation into Louisiana State were the early settlers along the Gulf of Mexico, the slaves brought from Africa, and the Acadian refugees from Canada. Once the disease had been established, its further progress was through lines of communications and further colonization, spreading from New Orleans in a radial manner. The earliest settlement in the state was established in 1699, and the existence of leprosy was first discovered in 1758. Isolation was begun in 1766. In 1778 a hospital for lepers was founded in New Orleans, but it had only a brief existence because the number of patients diminished in a few years. After the discontinuance of this hospital the Hagan Avenue Home took care of the lepers until the state established the Louisiana Leper Home at Carville in 1894. During its existence of 41 years this home has accommodated 519 Louisianians, i.e., an average of about 12 new patients per year.—[From abstract in *Lep. India* 9 (1937) 28.]

HASSELTINE, H. E. National Leprosarium, Carville. A review of the more important activities during the fiscal year ending June 30, 1936. *Hosp. News* 3 (1936) No. 16.

The population of this institution at the end of the period was 374, coming from 27 states of continental United States and 31 foreign countries or extracontinental territories. Malaria, which had been epidemic, was held responsible for retrogression of health and progression of leprosy in many patients; a notable increase in eye lesions is mentioned particularly. An experiment with fever therapy was continued, with no marked evidence of improvement except of secondary conditions. Twelve patients were paroled during the year, too few "to warrant the belief that any of the procedures is defi-

nitely specific for leprosy." Foreign protein therapy has been used for inflammatory eye lesions with satisfactory results, and the electric cautery for leprosy lesions of the eye. Summaries of the work of the orthopedic, dental, laboratory and various other services are also given.  
—H. W. W.

[CALCUTTA SCHOOL OF TROPICAL MEDICINE.] Annual Report for 1936. Calcutta, pp. 179.

The director's summary of research in the leprosy department is as follows:

Dr. Lowe in charge of the Leprosy Department and Dr. Dharmendra very kindly lent by the Indian Research Fund Association carried out treatment with leprolin and diathermy for the relief of neuritis. Various forms of experimental treatment, e.g., colloidal copper injections, cobra venom injections for the relief of acute leprosy neuritis, injections of hydnocarpus preparations around the nerves and into the affected area have been tried. A careful study of the tuberculoid type of leprosy has been made and its recognition and differentiation from ordinary leprosy infiltration in the skin has been found to be very important from the point of view of prognosis. Exhaustive experiments have been carried out in the cultivation of lepra bacilli especially by the methods of McKinley, Soule and Verder with interesting results. The work on the growth of lepra bacilli in tissue culture has been continued but no evidence of multiplication has been obtained.

New patients attending the clinic for diagnosis numbered 1,762; old patients attending for treatment were 897 (688 neural and 209 cutaneous or mixed). Details of the culture experiment referred to are: 313 tubes inoculated in 8 experiments and incubated under special gaseous tension; of 136 tubes examined at the time of report (not including 23 contaminated ones) smears from 11 showed no acid-fast bacilli, those from 89 showed scanty to fair numbers of bacilli, and 36—all from two experiments—showed large numbers, suggestive of multiplication. Similar but less marked evidence of growth was also seen in some of the control tubes incubated under ordinary atmospheric conditions.  
—H. W. W.

FABRE, M. Léproserie de Valbonne. [The Valbonne leprosarium.] Rev. Hyg. et Méd. Prév. 53 (1936) 758-764.

This is a brief general account of a small isolated leprosarium in France, founded to accommodate some of the lepers from the Paris Hôpital Saint-Louis.—[Abstract from *Trop. Dis. Bull.* 34 (1937) 600.]

TENG, C. T. Leprosy in Canton, its problem and solution. *Lep. Quart.* 9 (1935) 301-305.

The persistence of leprosy in the Canton region is attributed to hiding of the rich lepers in their homes, marrying and having offspring as ordinary people, the practice of prostitution by lepers having slight lesions, the giving up of leper children by their poor parents to others for service as servants, concubines, etc. The number of lepers in the city tends to increase. A brief history of the development of four leper districts, a description of the existing leprosaria, and plans for building larger ones and the establishment of leper homes, are given.  
—M. B. L.

[MEXICO] Primer Censo Quinquenal Reglamentario de la Lepra en la Republica Mexicana, 1930-1934. Departamento de Salubridad Publica, Servicio de Profilaxia de la Lepra, 1935, 136 pp.

This is a report of an elaborate census of leprosy in the republic of Mexico, made under the leadership of Dr. Jesus Gonz  les Uru  a. The disease exists in all of the thirty-one states, though in each of four of them only a single case was

reported. The highest incidence was observed in the Federal District, with 451 cases. The total number of cases was 2,449, nearly three-fifths of them males. None was under 5 years of age and only 72 over 70; the greatest incidence was in the third decade. A large majority (1,692) were of mixed blood, only 374 being white persons and 371 full-blooded Indians, in spite of the fact that the last group forms the greater part of the population. The social and economic position and mode of living were usually poor. The type incidence was: macular 479 (20%), neural 479 (20%), nodular 757 (31%) and mixed 734 (30%). Of the total number, 375 were hospitalized and 403 were isolated at home. In barely one-fifth of the cases was there a family history of leprosy, according to information given by the patients.—[From abstract in *Arch. Dermatol. & Syphilol.* 35 (1937) 1004.]

[SOUTHERN RHODESIA] Public Health Report, 1935.

In the year under report 1,311 cases were treated in two large government settlements and 48 more in a small mission one, a total of 1,359, mostly volunteers. In 1929 only 508 were cared for. The admissions in 1935 numbered 249, and 319 patients were discharged as "arrested" after treatment.—[From abstract in *Lep. Rev.* 8 (1937) 44.]

[SUDAN.] Medical Service Report, 1935.

This report shows a total of 10,711 lepers, including an estimated excess of 2,250 over the known cases; 4,210 are under treatment and 4,251 under observation. Camps and settlements contain 390 segregated patients, and 2,308 additional ones are treated there. New voluntary settlements near dispensaries were being formed. The proportion of cases rendered quiescent had risen from 31% (1932) to 78%, but the stage had been reached in which further chaulmoogra treatment was of no avail in cases under observation prior to 1933-34. Few advanced cutaneous and mixed cases respond to treatment. Less than 10% of the cases are considered to be a danger to their neighbors. Methylene blue had proved disappointing in advanced cases. "Treatment is effective and worth trying in a large percentage of active early cases over a period not exceeding four years. The settlements have removed the chief foci of infection in the district, and both centralized and simplified their control."—[From abstract in *Trop. Dis. Bull.* 34 (1937) 602.]

[HONG KONG] Report of the Director of Medical and Sanitary services for the year 1935.

The circumstances under which leprosy is found in Hong Kong and the measures that have been taken against it in the past are reviewed, and the new ordinance passed in 1935 is summarized. It is the intention of the Government to establish a proper leper settlement in a suitable situation when the necessary funds are available. The severe financial depression prevented anything being done in 1935, or any provision being entered in the estimates for 1936. The settlement, when built, will not be solely a place of segregation, but will be a center for inpatient treatment and a retreat for those who are unable to provide for themselves. In May, 1935, arrangements were made with the Tung Wah Hospital Committee for the use of the small-pox hospital as a refuge for lepers. From then until the end of the year 44 cases (34 males and 10 females) were admitted.—[From abstract in *Jour. Trop. Med. & Hyg.* 40 (1937), Col. Med. Rpts. 61.]

RODRIGUEZ, J. Significance of Cordova leprosy survey with regard to the policy of compulsory segregation in the Philippines. *Month. Bull. Bur. Health, Manila* 17 (1937) 18-28.

The results of the survey made in Cordova, Cebu, in 1933 and 1935, are analyzed. The trend of the numbers of segregated lepers from 1904 to 1935 does not show any definite decrease or increase, the yearly number fluctuating very irregularly, with a total of 194 cases for the whole period. On the basis of the records of these cases the author has classified them "presumptively" as open or closed, depending upon the presence or absence of infiltrations or nodules in the nose or ear lobes. This analysis, illustrated in a graph, shows a distinct decrease of open cases and a definite increase of closed ones for the period from 1925 to 1935. This trend is believed to be due to the changed attitude of the people of Cordova towards leprosy segregation following the arrival of the first paroled patients from Culion in 1924. A table shows a marked drop in mass exposure during the period 1930-1935. The author believes that these data indicate favorable effects of leprosy segregation in Cordova, but these effects are of too recent occurrence to have had as yet any measurable influence on the annual attack rate. He states that the main weakness of segregation in the Philippines today is not so much the hiding of cases as the postponement of presentation, resulting in the prolongation of the period of exposure among the contacts. Remedial suggestions are offered.

—M. B. L.

MARCHOUX, E. Leprosy control in French colonies. *Bull. Acad. Med.* (1937)

Because 400 cases of leprosy were discovered after threat of confinement had been removed in a region thought to be purged of leprosy, the French Sanitary Commission decided to abandon the method of segregation handed down from the Middle Ages and to adopt more humane measures similar to those used in tuberculosis. A census is to be made and kept up to date. Clinics are to be established in places convenient to the outpatients, with nurses who will visit the homes to give advice and to dress open ulcers to prevent contagion. Only three changes are made in the domestic habits of the patient: he is to have a separate bed and separate dishes and he will wash and keep his clothes separate from those of the rest of the family, who are urged to use a great deal of soap. Hospitalization is for extreme cases only. The indigent and the incapacitated are to be cared for in colonies, near enough to the centers of population to maintain normal social contacts. The old prison-like leprosaria are being abandoned. This has been the policy for the past five years throughout the colonial empire and it is being put into actual operation to a steadily increasing extent. The results already encourage its proponents in their belief that this is the method of choice for the ultimate elimination of leprosy.—[From abstract in *Urol. & Cut. Rev.* 41 (1937) 750.]

MUIR, E. The control of leprosy. *American Jour. Trop. Med.* 17 (1937) 51-58.

This lecture summarizes the present position of the leprosy problem. Compulsory segregation is condemned as leading to concealment of patients. Much has been learned from surveys, which revealed the real number of cases in India to be up to ten times as many as the obvious ones recognized by non-medical census enumerators. Although the value of treatment has sometimes been exaggerated it is certainly more effective in leprosy than in tuberculosis. Its chief value is in gaining the confidence of the patients and rendering easy their

follow-up and the tracing of contacts, and thus simplifying of control through education of the people in simple measures of household and village isolation of the infective cases, which are not more than one-fourth of the whole number. The decline of leprosy in England in the Middle Ages is attributed largely to segregation. The success of segregation in Norway was due to a wisely planned campaign in a civilized country with a well developed health service; in any leprosy country a carefully planned program in accordance with social conditions is essential. The propaganda-treatment-survey plan has proved successful in India. Improvement of hygienic conditions and nutrition is of great importance, but is necessarily a slow process in backward areas.—[From abstract in *Trop. Dis. Bull.* 34 (1937) 599.]

ALONSO DE MAY, G. AND ALONSO DE MAY, J. Come se estiende la lepra.  
[How leprosy spreads.] *Rev. Uruguay Dermat. Sifil.* 1 (1936) 167.

The histories of two families show in each of them a frank leper, and suspicious manifestations in various members of them.—[From abstract in *Ann. Dermat. et Syphil.* 8 (1937) 254.]

KAYSER, J. D. Eenige opmerkingen naar aanleiding van een dertigtal ziektegeschiedenissen van onderzochte en gedeeltelijk behandelde lepralijders.  
[Observations on thirty cases of leprosy examined and partly treated.]  
*Geneesk. Tijdschr. Nederlandsche-Indië Feestbundel*, 1936, pp. 353-370.

This is a detailed report on thirty cases of leprosy observed by the author, admittedly too few to permit drawing any conclusions but considered of interest. Among them were 12 European patients, 7 women and 5 men, who went to Netherlands India as adults and who were certainly infected after that time. In another group of adults the time of infection is uncertain because though they claimed not to have had any symptoms before adult age, they were born in the Indies and so may have been infected earlier. There were 9 children, four of them of European parentage. One girl had been born in Holland and removed to the Indies when one year old; the other girl and the two boys were born there and were taken to Holland, infected, while still young. It is held that there is no reason to assume an immunity to infection on the part of adults, and that the figures for adult and young pure-bred Europeans do not give evidence of a greater susceptibility on the part of children. The adult lepers had 21 children, none of whom were infected. [Apparently they were living in Europe.] The parents of the four children referred to were healthy. There is, therefore, here no question of hereditary or familial infection, and the author stresses the importance of extra-familial infection, for which there is ample opportunity in Netherlands India. He cannot reconcile his observations with the idea of transmission by direct contact, since infection by that route should occur in Holland as well as in other climates. The results of treatment of these patients is also discussed.  
—H. W. W.

LAMPE, P. H. J. Some views on the spread of leprosy and remarks on its prophylaxis. Report on Item V of the Agenda of the Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene. League of Nations, Health Organization, Bandoeng, August 3rd to 13th, 1937. Geneva, 1937, pp. 51.

The author covers the field indicated by the title so fully that it is not



possible to do justice to the report in a brief review. In his summary he states that intrafamilial morbidity is capricious and irregular and less than would be expected. The course of leprosy in small communities is typified by an explosive beginning of a localized epidemic, with a tendency to retrogression in closed circles but postponement of that change where there is much immigration and inter-communication. These conditions may be explained by sporadic or only temporary appearance of susceptibility, which condition is common to all age-groups; greater susceptibility of the young is considered not proved. The continued existence of leprosy in a region is held to be dependent on spread by foci ("exhaustion" theory), by new local epidemics in foci of numerically high susceptibility. The morbidity chance within families is of minimal epidemiological significance, since a great majority of cases in an endemic region occur in families without any other case. The great predominance of extrafamilial morbidity reduces the significance of intimate or prolonged contact with lepers, and makes questionable the basis of prophylactic measures employed in many countries. It should be recognized that anyone may be a predisposed victim, even to slight or short association with lepers. The author believes that lepers should be segregated in their own homes, without restriction as regards contacts within the family but with prohibition of frequent entry by others.

—H. W. W.

MANALANG, C. The pathogenesis of leprosy and its significance for the etiology, transmission, epidemiology and curability of the disease. Report on Item V of the Agenda of the Intergovernmental Conference of Far-Eastern Countries on Rural Hygiene, League of Nations Organization, Bandoeng, August 3rd to 13th, 1937. Geneva, May 1937, pp. 28.

Decrying the almost universal dependence upon unscientifically acquired epidemiological data, and reliance on the idea that the recognizable form of *M. leprae* is the causative agent of the disease, the author argues for the views which he first enunciated in 1932. These, he believes, if confirmed, would do away with the contradictions in the present knowledge of the fundamentals of leprosy and should put its control on a firm basis. He has attempted a scientific though indirect, method of approach which completely disregards "histories" and "hearsay," by a studying of the histogenesis of leprotic lesions in children of lepers of different ages and adult lepers in different phases of the disease. From his own observations and from a critique of studies on epidemiology and treatment made by other workers, he believes that transmission occurs solely in infancy or early childhood by skin to skin contact with a leper, and that the adult is immune. The bacillated, frank lesions appear later, or the infection may remain permanently latent. He believes that leprotic lesions are due to a "virus" or submicroscopic stage of *M. leprae*, the latter being regarded merely as a microscopic symptom. From this he claims that the bacteriologically negative leper is infectious, a carrier of the leprosy "virus"; that the spread of leprosy is directly proportional to the number of lepers (cases and carriers) and of infants coming in contact with each other; that adult contact, sex, race, occupation, diet, environment, geography and climate have no relation to the spread of the disease; that the effect of the best antileprosy drugs, at present, is only esthetic and not permanent, causing temporary disappearance of the bacilli but not preventing the "cured" from becoming bacteriologically positive again, and that they are ineffective against the "virus" stage.

—M. B. L.

[The resolutions adopted by the leprosy subcommittee of the conference, for which were prepared the reports summarized in the two preceding items, are printed in the news section of this issue.—EDITOR.]

SCHUJMAN, S. Epidemiologia de la lepra. Consideraciones sobre las teorías de Manalang. [Epidemiology of leprosy; the theories of Manalang.] *Rev. Brasileira Leprol.* 4 (1936) 329-341.

Objection is made to the arguments of Manalang sustaining the existence of an evolutive cycle of the bacillus because it is not found in many incipient cases and almost never in tuberculoid leprosy. The relapse of the negative cases which Manalang attributes to a virus which begins a new evolutive cycle is interpreted as due to a new implantation of bacilli coming from visceral leprotic foci. It is believed that if a virus exists, its pathogenic capacity must be insignificant. The author disagrees with Manalang in considering negative cases as dangerous as those with bacilli; to the contrary, only the positives should be isolated, though the negatives should be followed up, especially those that give negative or weakly positive Mitsuda reactions. Treatment should be extended to attack most effectively the bacilli in the visceral foci.—[From author's summary.]

BECHELLI, L. M. Contagio conjugal na lepra. [Leprosy from conjugal association.] *Rev. Brasileira Leprol.* 4 (1936) Special number, 349-354.

From a study of 506 cases in which one of the married couples was a leper the author has traced infection to the partner in 49, or 9.7%. Further, infection by conjugal contact nearly always occurred, as one would expect, in the earlier years of cohabitation. That the infection is not more often acquired is ascribed by the author to lessened receptivity in adult life, or to the possibility that frequently repeated contagion leads to the development of a certain degree of immunity.—[Abstract from *Trop. Dis. Bull.* 34 (1937) 601.]

LAGOUDAKY, S. Self-inoculation of leprosy. Second communication. *Jour. Trop. Med. & Hyg.* 40 (1937) 77-79.

This second report of the author's self-inoculation with lepers' blood gives a detailed account of the effects, on the leprotic lesions which had resulted from the inoculations, of treatment by intravenous and intramuscular injections of alepol and antilepra tablet preparation 1286/1. Treatment was begun in November, 1934, five months after the inoculation, and was continued until March, 1937, when he had received a total of 24 intravenous and 73 intramuscular injections and had consumed a total of 1,053 tablets. The sensation after the injections, the restoration of the normal color in the lesions, the slow regression of the lepromata, the disappearance of leprosy bacilli from the mucosa and the skin, and the persistence of nearly imperceptible traces of a dark red hue in the skin are described. The report bears the supporting certificate of a colleague.

—M. B. L.

ROTBURG, A. A reação leprotica na infancia e na adolescencia. Influencia do sexo, forma de molestia, bacterioscopia e tratamento. [Leprosy reaction in infancy and adolescence; influence of sex, form of the disease, bacteriology and treatment.] *Rev. Brasileira Leprol.* 4 (1936) Spec. No., 213-220.

The author has made a statistical study of leprosy reaction among 176

minors in the Sanatorio Padre Bento, with the following results: Both sexes are equally affected (38 and 39%). In the absence of purely nodular forms, the mixed forms gave the highest rate, 82%, against 56% for the neural form and 17% for the macular. The neural and macular cases in which reaction was observed were almost all bacteriologically positive. Heavily bacillated cases gave 78% with reaction, against 53% in lightly bacillated ones and 1.4% in negative ones. In 46 cases of reaction 54% had it before they received total injections of 200 cc. of chaulmoogra drugs, and 82% before they received 400 cc.—[From author's summary.]

BECELLI, L. M. O tempo de incubação da lepra. [The incubation period of leprosy.] *Rev. Brasileira Leprol.* 4 (1936) Special number, 355-360.

The author investigated 529 cases but was able to obtain reliable information in 273 only. The average incubation in these was 8.4 years. In 101 it ranged between 6 and 10 years; the minimum was 2 and the maximum 28. He maintains, therefore, that examination of contacts should be repeated up to 10 years after exposure to possible infection.—[Abstract from *Trop. Dis. Bull.* 34 (1937) 604.]

VAN POOLE, G. McD. Leprosy and tuberculosis of the eye. *Trans. 70th Ann. Meet., American Ophthal. Soc., 1934.*

This article is a thesis, based on the study of the fundi of 206 Hawaiian leper patients and 260 persons with pulmonary tuberculosis. The histology of leprotic lesions and the pathogenesis of involvement of the eye in that disease are discussed briefly, and the changes found in the different ocular structures in some detail. Among the cases studied there were 17 (8%) with iritis, 11 (5%) with keratitis, 9 (4%) with lagophthalmos, 7 (3%) with chorioretinitis; 7 (3%) with retinitis, 5 (2%) with lepromata of the cornea, 4 (2%) with cataract, and 1 (0.5%) with a leproma of the iris. Classifying all cases that showed a decidedly indistinct contour of the disc as optic neuritis, he found 49 cases, or 24%; excluding 18 in which there was a complicating condition such as syphilis, tuberculosis, etc., there remained 31, or 15%, with fundus changes that could be ascribed solely to leprosy. Brief details of 89 cases are given. In the tuberculosis patients chorioretinitis was found 14 times (5%) and optic neuritis 5 times (2%). In both diseases, the author concludes, optic neuritis seems to be a more or less transitory phenomenon, probably associated with exacerbations and with a state of high tissue allergy. On the whole, the posterior segment of the eye is but rarely invaded in leprosy or in tuberculosis as encountered in institutions.

—H. W. W.

BASOMBRI, G. Los trastornos objetivos de la sensibilidad en las manifestaciones cutaneas. [Objective disturbances of sensation in skin lesions.] *Rev. Argentina Dermatosisif.* 20 (1936) 209-222.

The author has studied the disturbances of sensation in sixty-three skin lesions. These included 33 bacteriologically positive lepromatous ones, only 12 of which were free from any sensory changes, 14 tuberculoid ones and 16 of the maculo-anesthetic class (with only amorphous perivascular infiltration), all of which showed changes. The frequency with which the different abnormalities were found are shown in the following tabulation, in which the first column refers only to the 21 lepromatous lesions that were not normal in this respect:



	LEPROMA- TOUS	TUBER- CULOID	MACULO- ANESTHETIC
CHANGES OBSERVED:	(percent)	(percent)	(percent)
Pain sense.....	85	79	90
Thermal sense.....	64	93	94
Light tactile.....	33	65	75
Deep tactile.....	3	0	25

None of the tuberculoid lesions showed loss of deep tactile sense, but the frequency with which the other changes occurred is held to constitute a further reason for including this class of lesion in the neural form of leprosy. The maculo-anesthetic group presented the most important changes. In some cases there were differences between the findings in the zone of activity and those in the area of retrogression, an unequal perception of heat and cold or errors of localization.—[From abstract in *Ann. Dermat. et Syphil.* 8 (1937) 412.]

LOWE, J. AND CHATTERJI, S. N. Some causes, other than leprosy, of loss of skin sensation, paralysis, and deformity. *Lep. India* 8 (1936) 141-146.

The authors enumerate causes of skin anesthesia other than leprosy that they have encountered. (a) Peripheral neuritis, as that in Bernhardt's disease, herpes zoster, beriberi and lead poisoning. (b) Traumatic conditions affecting the nerves, as those due to wounds, fractures, callus formation, subcutaneous injections. (c) Pressure upon the nerves by various causes, as by cervical ribs and neoplasms. (d) Lesions of the spinal cord as in syringomyelia. (e) Lesions of the arteries involving narrowing or obliteration of the lumen, as in Raynaud's disease and endarteritis obliterans. (f) Lesions of the skin itself, as scleroderma, keratosis, scarring from burns or ulcerations. With regard to differential diagnosis, the authors emphasize the questions of character and distribution of the anesthesia, presence of other changes (such as depigmentation, anhydrosis, etc.), local thickening of cutaneous nerves, the bacteriological examination, and the general clinical picture; in the absence of corroborative evidence of leprosy some other cause of anesthesia should be considered.

—H. W. W.

PANJA, G. Two cases of leprotic abscess. *Calcutta Med. Jour.* 30 (1936) 605.

Two instances of this rare complication of leprosy are reported. In both cases the pus, carefully removed to avoid contamination by skin cocci, showed many leprosy bacilli.—[From abstract in *Arch. Dermatol. & Syphilol.* 36 (1937) 149.]

NATALI, C. AND CAFFARENA, S. [Pluriglandular syndromes with gynecomasty in leprosy subjects.] *Rev. Sud-Americana Endocrinol., Immunol. y Quimoter.* 15 (1932) Nos. 1 & 2.

The authors describe certain pluriglandular syndromes, hypothyroidism, sexual impotence, hypoadrenalism, eunuchism, dystrophic xeroderma, and orchiepididimitis, observed in 6 cases of leprosy, including 2 macula anesthetic, 2 mixed and 1 "pustular." The histopathology of gynecomastia, which is frequent in leprosy, is discussed. It presents characteristics similar to the non-functioning female breast, its growth parallels that of the pubescent feminine breast, but its functional capacity is inferior as evidenced by the presence of colloid in the acini. Enlargement of the male breast is closely associated with deficiency or suppression of testicular function due to orchiepididimites. For

the acquired development of heterosexual characteristics the authors propose the term "somatic hermaphroditism of adults."—[From a précis in *Lep. Rev.* 7 (1936) 19.]

BAPTISTA, L. A ginecomastia na lepra. [Gynecomastia in leprosy.] *Rev. Brasileira Leprol.* 5 (1937) 53-66, 193-259.

This article, to which is appended a lengthy résumé in German, begins with a general and historical discussion of hypertrophy of the breasts in males, with numerous references. Among 842 patients of all ages in the Pirapitingui Colony the condition was found in 72 (8.6%); one was a boy of 14, the others were adults. At the Aymores colony there were only 17 cases among 292 adults (5.8%). Eleven cases which were specially studied are described in considerable detail. The investigations comprised pharmacodynamic and basal metabolic tests and histological and other examinations. The report is illustrated with photographs of patients and several photomicrographs, especially of testicular changes found, but no summarization of the observations or conclusions are offered. Injury of the endocrine glands is the principal cause of gynecomasty.

—H. W. W.

DE SOUZA-ARAUJO, H. C. Dermatite verrucosa leprotica. (Estudo de 3 casos.) [Study of three cases of dermatitis verrucosa leprotica.] *Mem. Inst. Oswaldo Cruz* 32 (1937) 311-320.

Three cases of verrucous dermatitis in C3 lepers, discovered in the Curupaity National Leprosarium, Rio de Janeiro, were suspected to be an association of leprosy with chromoblastomycosis. Attempts to cultivate the fungus responsible for that condition (*Acrotheca* or *Hormodendrum pedrosoi*) were negative. Histologically the lesions proved to be leprotic granulomata without mycotic association. This condition is considered to be a new syndrome of the disease and not a new clinical form. Electrocoagulation improved the lesions.—[From author's summary.]

NICASTRO, A. [Early diagnosis of leprosy.] *Rev. San. Siciliana* (1937) No. 1.

Prodromal symptoms which, occurring in a person living in a region where leprosy exists, should be regarded with suspicion are: an early macular erythema, dryness of the nose, epistaxis, hyperesthesia and paresthesia, neuralgia, vague pains, asthenia, somnolence, glandular enlargement, dysmenorrhea in women, loss of hair, etc. A careful history is also necessary, especially with reference to leprosy in relatives. Glandular hyperplasia is important and bacilli should be sought in aspirated fluid. Examination of the nasal mucosa for infiltration, reddening, abrasions, ulceration or perforation is indispensable. Preceding the erythema there may be fever, anorexia, rheumatic pains, pruritus, a burning sensation. Skin areas may be pigmented, brownish, circinate, anesthetic (morphea nigra), whitish and without sensory disturbances (morphea alba). Loss of hair and diminution of sweat are important, especially if accompanied by sensory disturbances (tactile, thermal and pain). Hardening and enlargement of the nerves and pain on pressure is sought for, also reduction of the cutaneous and tendon reflexes and trophic disturbances of muscles (thenar and hypothenar eminence). Serum reactions and blood chemical examinations are of little value. Regarding the bacteriological examination (nasal secretion, lymph glands, skin lesions) Ramon Gonzales recommends the intravenous use of trichophytin to produce focal reactions and elimination of bacilli.

Examination of blister fluid and of centrifuged suspensions of excised tissue have been recommended. Methylene blue injections may be used (Tommasi) to distinguish leprous lesions.—[From abstract in *Urol. & Cut. Rev.* 41 (1937) 521.]

REISS, F. The diagnosis and diagnostic problems of leprosy. *Lep. Quart.* 10 (1936) 60-68.

In this brief discussion of the diagnosis of leprosy two main factors are emphasized, the presence of *M. leprae* and sensory disturbances. Tuberculoid leprosy is a matter of serious diagnostic difficulty, as it resembles lupus vulgaris or Boeck's sarcoid; bacilli are generally absent but may be found in serial sections. The author uses the scraped-incision method of obtaining material for the bacteriological examination. The histamine, leprolin, Rubino and complement-fixation and albumin reactions, the sedimentation rate and albumin:globulin ratio are not of much use for diagnosis. The histopathology of the different types of leprosy is described. —M. B. L.

FERNANDEZ, J. M. M. Sobre el valor del azul de metileno como elemento de diagnostico en dermatologia. [The value of methylene blue in dermatological diagnosis.] *Rev. Argentina Dermatosif.* 20 (1936) 434-447.

The author has given methylene blue intravenously to patients with leprosy and several varieties of skin diseases, in doses of 10 to 20 cc. of a 1% solution, twice a week until 100 cc. had been administered. In leprosy the lepromatous lesions—nodules, infiltrations and macules—became colored, but tuberculoid lesions, those of neuro-muscular leprosy and those in lepra reaction did not. These facts indicate a relation of the degree of coloration to the bacillary content, and histological examination showed that there is coincidence with the presence of dense histiocytic infiltration. In the other diseases—lichen, psoriasis, pityriasis versicolor, pityriasis rosea, and xanthelasma—there was no coloration of the lesions. Whatever interest may attach to the observations made, the author concludes that the procedure is of no practical value in dermatological diagnosis.—[From abstract in *Ann. Dermat. et Syphil.* 8 (1937) 633.]

DUBOIS, A., GAVRILOV, W. AND FESTER, A. La bacillémie chez les lépreux comme méthode de culture et comme méthode de diagnostic. [Bacillæmia in lepers; culture and diagnosis.] *Ann. Soc. Belge Méd. Trop.* 17 (1937) 169.

Löwenstein's method of centrifugation, direct examination and cultivation was adopted by the authors, who treated 78 samples of human blood drawn from Congo lepers in venules. They were unable to corroborate Löwenstein's findings, at least as regards the results of cultures. In 54 the attempts to cultivate the organism failed completely, both with Löwenstein's media for leprosy and with their own media which contained human skin extract. In 78 microscopic tests, acid-fast bacilli were found in 19, though in only 4 of these cases (cutaneous type) were the quantities of bacilli considerable. In neural-type cases the findings were, as a rule, negative. This method appears to be of small diagnostic interest. It is not possible entirely to overrule the objection that the observed bacilli existed in the skin. —A. DUBOIS

DE LOIOLA PEREIRA, O. The treatment of leprosy. *Med. Bull.* (1936) July 18.

The method of treatment used by the author in the leper asylum in Goa, India consists of a two-months preparatory treatment of all intercurrent dis-

eases, followed by specific treatment thereafter. The antileprosy drugs used are neutralized pure chaulmoogra oil, E.C.C.O., iodized moogrol, alepol and mercurochrome. The neutralized oil is given intravenously, 1 cc. twice a week for four times, followed by a rest interval of 15 days. E.C.C.O. is started with 1 cc., also with a 15-day rest interval between series. Iodized moogrol is given intradermally, doses increasing from 1 to 6 cc. in infiltrated areas; injection of a given place is not repeated before six weeks. Oil is also given by mouth, one or two 15-drop capsules daily, or else two tablets of alepol. A mixture of chaulmoogra and coconut oil in the proportion of 1:3 is also rubbed all over the body. Mercurochrome solution is used intravenously for ulcers.

—M. B. L.

DE LOIOLA PEREIRA, O. On the effects of alepol on leprosy. Antiseptic (1936) July.

The effects of alepol treatment were observed in 61 cases. The drug was administered intravenously, 1 cc. of a 3% solution, increasing by that amount to 5 cc., which dose was then maintained. Total injections exceeded 1,700. Of the 61 cases 41 were mixed, with initial cutaneous lesions, and 20 were more advanced. Endophlebitis and local inflammation occurred frequently. Increase of the cutaneous lesions with consequent physical weakness was observed. There were seven deaths due to rapidly developing nephritis. Ten of the 41 initial cutaneous cases became considerably better while the more advanced ones remained unimproved.

—M. B. L.

BRAGA, R. Tratamento das úlceras leproticas por injeções intra-arteriaes. [Treatment of leprotic ulcers by intra-arterial injection.] Rev. Brasileira Leprol. 4 (1936) 447-467.

The author describes a method of treating chronic ulcers of the lower extremities, first used in Brazil by Valerio, by intra-arterial injection of anti-septic dyes. He gives the indications, contraindications and advantages of the method, the possible accidents (as chills, which he himself has not met in his work), and the technique, which is said to be no more difficult than intravenous injection. He first used methylene blue, but later gentian violet. Details of 7 cases treated with the latter dye through the femoral artery are given, with photographs. The method influences the circulatory and nutritional condition by periarterial sympathetic effect and by bringing the anti-septic to the affected tissues rapidly and unaltered, and is the most efficient and innocuous one for treating the ulcers so common in leprosy.—[From author's summary, and abstract in *Brasil-med.* 50 (1936) 701.]

VAN BREUSEGHEM, R. Iode per os en thérapeutique antilepreuse. [Iodine by mouth in treatment.] Ann. Soc. Belge Méd. Trop. 16 (1936) 367-377.

An attempt was made to verify the observations of Bartman, in the Congo, which led him to conclude that iodine has a favorable action in leprosy therapeutics. In the course of a year, 22 lepers were given a total dose of 20 gm. each of metalloid. This was without useful result, though tolerance was good.

—A. DUBOIS

VAN BREUSEGHEM, R. Le Solganol associé aux ethyl-esters de chaulmoogra dans le traitement de la lèpre. [Solganol and ethyl esters in treatment.] Ann. Soc. Belge Méd. Trop. 16 (1936) 379-386.

Fifteen patients were injected with small doses of solganol B oleosum or

plain solganol associated with chaulmoogra. No appreciable results were observed. The total dosage of solganol varied between approximately 1 and 4 to 5 gm. The doses of chaulmoogra were very small, about 30 to 80 cc.

—A. DUBOIS

VAN BREUSEGHEM, R. Essais thérapeutiques dans la lèpre. I. Le Calcium. II. Le Carbone intraveineux. [Therapeutic experiments with calcium and with carbon given intravenously.] *Ann. Soc. Belge Méd. Trop.* **16** (1936) 537-547.

Calcium chloride given intravenously (10 cc. of a 2% solution, twice weekly during 6 months) had no therapeutic effect on leprosy, notwithstanding the association of chaulmoogra. On the other hand calcium is beneficial in lepra reaction. Animal charcoal, 3 cc. of a 2% suspension in distilled water, given intravenously every 10 days for 15 times, was employed in 13 cases. Injection was followed by headache and articular pains. The results were poor except in 3 cases, which showed slight improvement. More extensive trials are suggested.

—A. DUBOIS

PARMAKSON, P. Anwendung von "Calcium-Sandoz" in der Lepratherapie. [Use of Calcium Sandoz in therapy.] *Dermat. Wehnschr.* **102** (1936) 199-201.

The author has treated 10 cases of leprosy by injections of Calcium-Sandoz in doses of from 5 to 10 gm. given biweekly and even every two days. He observed rapid cicatrization of the small ulcerations and amelioration of the respiratory symptoms, especially acute stenosis of the larynx and pleurisy. The drug was tolerated well.—[From abstract in *Ann. Dermat. et Syphil.* **7** (1936) 610.]

TISSEUIL, J. De l'action de la Sanedrine-Renaleptine, associées, dans les névralgies lépreuses. [On the action of sanedrine and renaleptine, combined, in leprosy neuralgias.] *Bull. Soc. Path. exot.* **29** (1936) 854-856.

Jeanselme, in his book on leprosy, recommends adrenaline and ephedrine as the best means of treatment in acute neuritis of lepers. Tisseuil describes four cases in which injections of sanedrine and renaleptine proved beneficial. The ampules contain 0.02 gm. of the former and 0.0002 gm. of the latter. Subcutaneous injections are given daily for ten days, a second series being administered after an interval of about a week. In one of the cases described three series were given; in two others, two series; and in another case, the pains had disappeared after three injections. (In the discussion R. Montel drew attention to the powerful action of intravenous injections of methylene blue in cases of neuralgia.)—[From abstract in *Jour. Trop. Med. & Hyg.* **40** (1937) 48.]

DE WILDEMAN, E. Une plante contre la lèpre. [An herb in leprosy treatment.] *Ann. Soc. Belge Méd. Trop.* **17** (1937) 13.

The author grew and studied bulbs of *Crimum scabrum* (Amaryllidaceae) brought back from Africa (Faradje, Belgian Congo) by Dr. Wolansky. According to the natives the cultivated variety which gives small bulbs is active against leprosy [mode of administration not given]. This herb contains alkaloids possibly of the emetine group, and in certain countries *Crimum* has been



used externally against different skin diseases. The author points out the interest of a chemical and pharmacological study of these plants. —A. DUBOIS

COCHRANE, R. G. AND PAUL RAJ, M. Alcohol injections for the relief of nerve pain in leprosy. *Lep. India* 9 (1937) 18-19.

Two adult, advanced neural cases with intense neuritic pains of the ulnar nerves were treated by injection with 5 minims of 80% alcohol into the affected nerve. There was instant relief in the first case, without recurrence within six weeks, and incomplete relief in the second. The authors are encouraged by these results and hope for further trial of the method elsewhere. They register a caution about injecting the alcohol into the surrounding tissues, as it is extremely painful. —M. B. L.

GUIDA, H. A. Tratamento clinico do mal perforante plantar pela acetil-cholina e insulina, nos doentes de lepra. [Treatment of perforating plantar ulcer with acetyl-choline and insulin.] *Brasil-med.* 50 (1936) 899 (abstract).

The author discusses the condition spoken of as "perforating disease of the foot," and the therapeutic use of acetyl-choline and insulin. Out of 14 cases there was cicatrization in 9 and marked improvement in 5, after combined treatment with these substances given in a series of 6 injections each, alternating the two daily. This was preceded by cauterization of the ulcer with 20% silver nitrate. Absolute rest is not necessary. Cicatrization was observed after two or three series of injections, given at intervals of about 10 days.—[From abstract.]

BERNY, P. AND GIPPET, E. Essai de traitement des ulcérations lépreuses au moyen de badigeonnages quotidiens avec une solution de bleu de méthylène au centieme. [Treatment of leprosy ulcerations by painting with methylene blue.] *Bull. Soc. Path. exot.* 24 (1936) No. 8.

In a previous note Berny described the successful action on leprosy algesia of methylene blue taken by mouth. This led to the trial of daily applications of a 1 percent solution to the lesions. The results have been very satisfactory, the lesions healing or cicatrizing after a period varying from nine days to about three months. Some of the ulcers were as old as nine years. The parts of the body affected in the nine cases reported were chiefly the hands, feet and legs; in one case the whole body was covered with ulcers. This treatment does not appear to have any effect on deep lesions. (In the discussion R. Montel stated that the cicatricial action of methylene blue has been known for a long time and is used in all the leprosy in Indo-China. At Thudamont, Freville uses it in the form of powder, as iodiform is used. He considers the 1 percent solution too dilute.)—[From abstract in *Jour. Trop. Med. & Hyg.* 40 (1937) 52.]

FLORIANI, L. AND FLORIANI, C. Nuevo tratamiento de la lepra, en especial de las ulceras leprosas. [New treatment of leprosy, especially of lep-rotic ulcers.] *Prensa med. Argentina* (1937) Aug. 4.

The authors report favorable results in cases of leprosy treated with an oily solution of the pigments of "urucú," and with an aqueous solution of the alkaloids from the cortex of "palo rosa" (*Aspidosperma polyneuron* Müell and Arg.). The favorable results were shown especially in the ulcerations.

—G. BASOMBRI

GASS, H. H. Surgical relief of logophthalmos following seventh nerve paralysis in cases of leprosy. *Lep. India* 7 (1935) 35-37. (Reprinted from *Lep. Rev.*, October, 1934.)

To remedy logophthalmos due to facial paralysis in leprosy the author uses the technique of canthorrhaphy which he describes and pictures. After the operation the eye is kept bandaged for about ten days, and the stitches removed carefully on the twelfth day. The importance of paring off the lash-bearing margins of the lateral cathus which are to be approximated by suture is noted. Bilateral operation gives a better cosmetic effect but is not always necessary.

—M. B. L.

GASS, H. H. The late neural case. *Lep. India* 9 (1937) 14-17.

The author draws attention to the importance of surgery in rehabilitating the late neural case of leprosy, discusses briefly the literature on the pathology of the bone lesions, and gives his own experiences. He finds *M. leprae* almost invariably present in the marrow of cutaneous cases, and believes these are periosteal inflammation and proliferative changes in that variety of the disease. Loss of bone calcium occurs in both types. The surgical procedures followed in treatment are given; field block and nerve block anesthesia are used for lower amputations, and spinal anesthesia with percain, 1-1,500 solution, in higher ones.

—M. B. L.

NAZAROV, I. I. [Corneal transplantation on leprosy eyes.] *Sovietskii Viest. Opht.* 9 (1936) 632-637.

A detailed clinical and pathological report of corneal transplantation from a normal person into an eye affected by leprosy. The healthy cornea took in the leprosy eye and maintained its transparency indefinitely. Three to four days after the operation leprosy granulation tissue appeared at the edge of the trephine opening of the leprosy cornea, and in a short time closed the entire line of junction. Simultaneously, inflammatory phenomena appeared in the anterior ocular segment. The study suggests that cornea and lens are most resistant to the leprosy process, and that vision is usually lost through involvement of the iris and ciliary body. The case also shows the deleterious effect of surgical trauma on an eye with advanced leprosy.—[Abstract from *American Jour. Ophthalm.* 20 (1937) 540.]

SALIBA, A. A physiotherapia no tratamento moderno da lepra. *Cryotherapia*. [Cryotherapy in leprosy treatment.] *Brasil-med.* 51 (1937) 281-286.

This article, a résumé of a lecture which reviews the use of carbon dioxide snow in dermatology and refers to Paldrock's use of it in leprosy, includes brief, illustrated summaries of eight cases treated by the author, who concludes that that substance is a useful agent in the external treatment of leprosy and other dermatoses, being simple of use and without violent effects. It ranks in usefulness with the roentgen rays and radium.—[From author's summary.]

SEZARY, A. AND LEVY, G. Les traitements actuels de la lèpre. [The present treatments of leprosy.] *Bull. Gén. Thérap.* 187 (1936) 307.

This is a critical study of treatments now in use. None is specific. Chaulmoogra oil and esters remain the basic medicaments. Methylene blue,

Vaudremer's vaccine and cryotherapy are new methods which permit more effective treatment.—[From abstract in *Ann. Dermat. et Syphil.* 8 (1937) 302.]

BOUSFIELD, C. E. Suggestions on the treatment of leprosy. *Lep. Quart.* 9 (1935) 313-317.

The author discusses the factors of individualization of patients, improved feeding and treatment of intercurrent diseases. For trophic ulcers he uses a copper sulphate solution and a 5% phenol ointment. Iodized chaulmoogra ethyl esters are used in small doses but at frequent intervals—1.5 cc. three times a week. It is better to give, jointly with it, intravenous injections of 1% methylene blue, in doses from 2 to 6 or 8 cc. Solganol is recommended for eye cases. Cod liver oil, Blaud's pills, alepol and mercury are also recommended for subsidiary use.  
—M. B. L.

POOMAN, A. Weitere Erfahrungen bei der Färbung von Lepra- und Tuberkelbakterien. [Further experiences in the staining of leprosy and tubercle bacilli.] *Arch. Schiffs- u. Trop.-Hyg.* 40 (1936) 533-538.

The author has previously reported his conclusion that the leprosy and tubercle bacilli are really stained by carbol-fuchsin only through the influence of alcohol or acids; that they are alcohol- and acidophilic rather than alcohol- and acid-fast. The supposed color-fastness of these bacteria has been considered an unstable property, dependent upon certain conditions. By prolonged action of alcohol or acids they lose this property and with it their color. The same holds for the alcoholophil and acidophil property of these microbes, since they are colored through the action of alcohol or acids only for a certain time; after they have reached the highest point of their capacity to be stained they later lose their colors.—[From a translation of the author's abstract.]

DUBOIS, A. La démonstration du bacille de Hansen dans les coupes histologiques. [Demonstrating the Hansen bacillus in sections.] *Ann. Soc. Belge Méd. Trop.* 17 (1937) 291.

The author, seeking by comparison the best technique for the finding of Hansen bacilli in sections, confirms the opinion of Lie and Lowe as to the necessity of limiting as much as possible the action of alcohol. He advises Lie's method of decolorization by Gabbet's blue, and in general decolorization with an aqueous mineral acid solution and not with alcohol.  
—A. DUBOIS

GAVRILOV, W., DUBOIS, A. AND FESTER, A. Contribution à l'étude des bacilles acido-résistants: le bacille de Kedrowsky. [Contribution to the study of acid-fast bacilli: the Kedrowsky bacillus.] *Bull. Inst. Roy. Col. Belge.* 8 (1937) No. 2.

The authors studied a strain of the Kedrowsky bacillus, received from the Russian scientist. They give a few details concerning its growth and staining, and particularly on the marked lowering of its acid-fastness when cultivated on the Kumbary medium. It was found to have little capacity to produce lesions in laboratory animals. They do not identify it with the Hansen bacillus. To support this opinion they point to its very easy cultivation, and to the fact that, when injected intradermally, it does not provoke the same phenomenon as leprolin.  
—A. DUBOIS

DE SOUZA LIMA, M. Cultura do *Mycobacterium leprae*. (Verificacao dos

trabalhos de Vaudremer.) [Cultivation of *M. leprae*; criticism of the work of Vaudremer.] *Rev. Brasileira Leprol.* 5 (1937) 133-140.

Vaudremer cultivated from leprosy an actinomyces of variable morphology that presented different characteristics according to the culture medium used; its forms were not acid-fast except slightly and temporarily, even when on special media. The author, having worked with the same technique, has come to the conclusion that Vaudremer's organism is not the leprosy bacillus, for the following reasons: Cultivation fails in about 50% of the attempts; with the same medium, varying only the pH, the germs present different cycles of evolution; the leprosy bacillus taken from patients and inoculated into animals do not depart from the known typical morphological or tinctorial properties; in cultures of leprosy tissues the organisms are present for some time, ultimately disappearing without showing changes of staining capacity or morphology; organisms like those described by Vaudremer are never found in sections of leprosy lesions. It is pointed out that all workers who have isolated nonacid-fast organisms from leprosy have tried to justify the absence of that property; thus Reenstierna concluded that it cannot be held to be a special characteristic of the leprosy bacillus, specific and permanent, but only a transitory one which decreases in the absence of fat and increases in its presence. The author, though not giving undue importance to this matter of staining, believes that it is the most characteristic feature of the bacillus and holds with Weil that a nonacid-fast organism should be considered not the Hansen bacillus until adequate evidence to the contrary is established.

—L. DE SOUZA

KRIZ, J. R. Biological study of "R" and "S" forms of chromogenic acid-fast bacillus from human leprosy lesion. *Proc. Soc. Exp. Biol. and Med.* 34 (1936) 303-306.

R and S forms were obtained from an acid-fast dull yellow bacillus isolated from a subcutaneous leprosy nodule according to the method of Duval. The R form grew more rapidly, formed a flaky suspension, was more thermostable, showed a predominance of large bipolar granules, and was surrounded by a thicker capsular zone. The R and S forms are reversible, the S being the typical and the R the mutant form.—[Abstract from *American Rev. Tuberc.* 35 (1937) 32.]

KRIZ, J. R. Effect of "R" and "S" forms of chromogenic acid-fast bacillus from human leprosy lesion on rabbits. *Proc. Soc. Exp. Biol. & Med.* 35 (1937) 546.

The "smooth" form of a chromogenic acid-fast bacillus isolated from a lesion of human leprosy, injected in large doses into previously allergized rabbits, produced cutaneous and visceral lesions with positive bacteriological findings, vascular and neural fibrosis and marked loss of weight. The "rough" form did not have the same effects.—[From abstract in *Rev. Brasileira Leprol.* 5 (1937) 284.]

SELLARDS, M. A. AND PINKERTON, H. Résumé d'expériences sur la propagation de la lèpre murine et humaine à des animaux considérés comme réfractaires. [Experiments on the transmission of murine and human leprosy to animals considered refractory.] *Bull. Soc. Path. Exot.* 29 (1936) 847-851.

The authors were successful in reproducing progressive and fatal murine leprosy lesions in white mice, rabbits, monkeys (*Macacus rhesus*) and guinea-pigs, by inoculations into the brain and spleen. The infection developed quickly. Histological studies showed that the bacilli multiply only in the cytoplasm of the cells of the reticulo-endothelial system. The injection of human leprosy bacilli into mice did not give encouraging results. In the monkey, acid-fast bacilli were found, but only in small numbers, after two passages, and two years after the first inoculation. No extensive lesions were found either at the point of injection or in the organs.—[From abstract in *Jour. Trop. Med. & Hyg.* 40 (1937) 52.]

HAYASHI, A. Early tissue reactions in various intestines of guinea-pigs and the distribution of bacteria, due to intravenous injections of acid-fast bacilli. *Jour. Oriental Med.* 24 (1936) 61.

Human and bovine tubercle bacilli, 7 days after injection, show multiplication and cause the formation of small caseous nodules. Other acid-fast bacteria, like the rat leprosy bacillus, decrease in number and the nodules caused by them at the beginning are absorbed.—[From a translation of abstract in *Arch. Schiffs- u. Trop.-Hyg.* 41 (1937) 526.]

ANDERSON, R. J., CROWDER, J. A., NEWMAN, M. S. AND STODOLA, F. H. The chemistry of the lipids of tubercle bacilli. XLV. Isolation of  $\alpha$  and  $\beta$  leprosol. *Jour. Biol. Chem.* 114 (1936) 431-439.

Two new alcohols,  $\alpha$  and  $\beta$  leprosol, having the formulae  $C_{26}H_{46}O_2$  or  $C_{25}H_{44}O_2$  and phenolic properties, have been isolated from the unsaponifiable matter of the acetone-soluble neutral fat of the leprosy bacillus. The composition and the reactions would indicate that they contain a benzene nucleus and that a hydroxyl and a methoxyl group are in the ring. There may be one or more side chains, but their nature and position are unknown.—[Abstract from *American Rev. Tuberc.* 35 (1937) 25.]

ANDERSON, R. J., CROWDER, J. A., NEWMAN, M. S. AND STODOLA, F. H. The chemistry of lipids of tubercle bacilli. XLIII. The composition of leprosin. *Jour. Biol. Chem.* 113 (1936) 637-647.

"Leprosin," a neutral, acid-fast, wax-like substance isolated from the leprosy bacillus, was found to consist of a complex mixture of solid glycerides and waxes. The fatty acids liberated on saponification were myristic, palmitic, stearic, tetracosanic acids and a new hydroxy acid, "leprosinic acid." The neutral portion of leprosin after saponification consisted of both water-soluble and ether-soluble components. Glycerol was the only water-soluble substance that could be detected. The ether-soluble, unsaponifiable matter consisted of two higher, secondary, optically active alcohols. The less soluble alcohol was identified as d-eicosanol-2. A second alcohol, probably d-octadecanol-2, was also isolated. These same alcohols have been previously identified as constituents of the so-called wax fraction of the timothy bacillus.—[From abstract in *American Rev. Tuberc.* 35 (1937) 25.]

DUBOIS, A., GAVRILOV, W. AND VAN BREUSEGHEM, R. Injection intradermique de bacilles de Kedrowski chez le lépreux et le non lépreux. [Intradermal injection of Kedrowski bacilli in lepers and nonlepers.] *Ann. Soc. Belge Méd. Trop.* 16 (1936) 483.



The authors injected intradermally an emulsion containing killed Kedrowski bacilli into lepers with various types of the disease and into nonlepers. In cutaneous-type cases there was no anergy, as is observed when crushed and boiled leproma ("leprolin") is employed. It is concluded that a notable difference must exist between Hansen and Kedrowski bacilli. —A. DUBOIS

ROTBERG, A. A reacção de Takata-Ara na lepra e na reacção leprotica. [The Takata-Ara reaction in leprosy and lepra reaction.] *Rev. Brasileira Leprol.* 4 (1936) Spec. No. 111-116.

The Takata-Ara reaction applied to the sera of 31 cases in frank lepra reaction was positive in 14 instances, but with sera of 14 patients without reaction in only 3 instances. There is no correlation between the results of the test and the sedimentation index or the clinical form of disease. As regards hepatic function or serum lability, this requires further investigation.—[From author's summary.]

ROTBERG, A. Algumas pesquisas elementares de laboratorio na reacção leprotica, urobilina, pigmentos bilares, diazo-reacção, bilirubina e resistencia globular. [Some laboratory examinations in lepra reaction.] *Rev. Brasileira Leprol.* 4 (1936) Spec. No. 109-110.

The author has investigated the urobilinogen, the urinary bile pigments and the Ehrlich diazo-reaction in 61 lepers, of whom 32 were in lepra reaction. In 26 patients, including 15 in reaction, bilirubinemia was determined by the Van der Bergh direct method, and the resistance of the red blood cells in hypotonic solutions. The results were entirely negative. The red-cell resistance was normal in all cases.—[From author's summary.]

CHORINE, V. AND CROUGUE, O. La cholestérine sanguine dans la lèpre murine. [Blood cholesterol in rat leprosy.] *Compt. rend. Soc. Biol.* 122 (1936) 621.

To contribute to information concerning blood cholesterol in leprosy the author has turned to the rat, "which presents a natural infection resembling from all points of view human leprosy" and which can be controlled as regards variables. The sera of 20 normal rats of the kinds used gave an average value of 0.58 (range 0.40 to 0.90), with no variation dependent upon sex. The 15 infected rats tested comprised 8 with massive intraperitoneal infections and 7 with less marked subcutaneous lesions. It is concluded that on the whole they showed a slight diminution, the average for them being 0.57 as against 0.65 for 15 normal controls, but that the examination is of no diagnostic value. —H. W. W.

PRUDHOMME, R. O. Le glutathion total dans la lèpre murine. [Total glutathion in rat leprosy.] *Compt. rend. Soc. Biol.* 122 (1936) 739.

It has previously been shown by the author that reduced glutathion is notably diminished in organs of rats markedly affected by leprosy, but normal in those only slightly affected. He has now ascertained that the diminution in the markedly affected organs is not apparent, due to transformation of the reduced glutathion into the oxidized form, but actual, due to disappearance of the substance. —H. W. W.

EMERSON, G. A. Glucose tolerance in rat leprosy. *American Jour. Trop. Med.* 16 (1936) 699-703.

It is shown in this note that fasting blood-sugar values alone do not

suggest dérangement of carbohydrate metabolism, and examined statistically are less only in the case of advanced untreated leprosy. High and abnormally prolonged glucose tolerance curves are met with in advanced rat leprosy, and can be regarded as evidence of liver damage. In early rat leprosy the microscopic appearance of the liver and the amount of hepatic glycogen are normal. Also the apparent disturbances in carbohydrate metabolism in rats, which does not occur in human leprosy, indicates a more extensive damage to the liver in the rat disease.—[Abstract from *Jour. Trop. Med. & Hyg.* 40 (1937) 76.]

ICHIHARA, T. Rat-mites (*Laelaps nezumi* Kishida, 1915) the transmitter of rat leprosy. *La Lepro* 7 (1936) 33 (abstract section).

Rat mites from leprosy rats were (a) emulsified and injected into healthy ones, and (b) placed on healthy ones to live. Of the first group all but two out of 18 animals developed the infection, while controls injected with mites from nonleprosy rats remained healthy. Of the two rats to which live mites were transferred, one developed infection (determined microscopically) of the lymph nodes; while the controls remained negative.—[From author's abstract.]

CHAUCHARD, B. AND CHORINE, V. Modifications de l'excitabilité nerveuse dans la lèpre des rats. [Modification of nerve excitability in rat leprosy.] *Bull. Acad. Méd.* 115 (1936) 954-956.

The authors state that leprosy rats, though they show no evidence of lesions of the nervous system, present modifications of excitability. For one thing, there is peripheral hyperexcitability due apparently to a state of irritation explainable by the presence of lesions of the meninges. There is also action of subordination of the centers that is clearly of a pathological order.—[From abstract in *Prog. méd.* (1936) 1127.]

CHORINE, V. Essais du traitement de la lèpre murine. [Treatment of rat leprosy.] *Bull. Soc. Path. exot.* 29 (1936) 949-952.

Three aminophenylsulfamides, designated by the numbers 1162, 1188, and 1189, show no therapeutic action in rat leprosy. Thymol and menthol are also without effect. Anthiomaline used in large doses aggravates the disease, especially at the beginning of the infection. Selenium in the metallic form has no effect.—[From author's summary.]

GOMES, J. M. Pesquisas sobre lepra murina. Filtrabilidade do bacillo de Estefanski. [Studies on rat leprosy; filtrability of the Stefansky bacillus.] *Rev. Brasileira Leprol.* 4 (1936) 423-433.

Comparison of the infectiousness of filtered and unfiltered suspensions of the Stefansky bacillus led to the conclusion that the virus [author's term] is more active and is disseminated more rapidly than the bacillary form; within less than 14 days acid-fast bacilli are encountered in the lymph nodes. Differences in regimen caused slight differences as regards infection, while intercurrent infections facilitated considerably the dissemination of the microorganisms. When an animal resists infection by whole bacilli, they disappear from the organs in about 3½ months. Infected organs kept in glycerine for 30 days proved to be slightly infectious. The ultravirus [*sic*] is an invasive phase in the cyclogeny of the bacillus.—[From author's summary.]

PELTIER, M. Résultats expérimentaux obtenus chez le rat blanc par injections

de filtrats de bacilles de Stefansky. [Results obtained by injection of rat leprosy filtrates.] *Bull. Soc. Path. exot.* **29** (1936) 108.

The author has previously reported the results of work with Choucroun on the electrophoresis of filtrates of rat leprosy material [see *THE JOURNAL* **4** (1936) 258.] The bacilli so obtained, morphologically typical, were inoculated subcutaneously in 20 white rats, of which 6 became infected. The manifestations of the disease were always preceded by the observation of acid-fast bacilli in the inoculated area or in the corresponding lymph nodes. Whatever the status of the hypothesis of the existence of a filterable virus [*sic*] of leprosy, it is proved that typical and virulent bacilli can traverse the filters.—[From abstract in *Bull. Inst. Pasteur* **34** (1936) 746.]

LAMPE, P. H. J. AND DE MOOR, C. E. Ratten-lepra. Vierde mededeeling: Zuurvaste saprophyten; aantekeningen bij het kweekonderzoek van rattenlepra. [Cultivation experiments in rat leprosy.] *Geneesk. Tijdschr. Nederlandsche-Indië* **76** (1936) 2147-2153.

Because of the lack of a proper test animal the writers are opposed to the continuation of cultivation experiments in human leprosy, and favor experimentation in rat leprosy to obtain indications that may lead to getting a culture of the causative agent of leprosy in man. Their own efforts to cultivate the bacillus of rat leprosy have been unsuccessful. Cultures of acid resistant micro-organisms were isolated on the medium of Loewenstein, but cultural and inoculation experiments proved them to be saprophytes. Similar cultures were regularly obtained by Söhnngen's method from specimens of soil that were capable of producing "soil leprosy" in rats.—[From author's summary.]

YAMAMOTO, K., SATO, M. AND SATO, Y. Rattenlepra: Statistische Beobachtungen in Tokyo. [Statistical observations on rat leprosy in Tokyo.] *Japanese Jour. Dermat. & Urol.* **40** (1936) July 20 (supplement, p. 28; abstract in German).

The authors give detailed statistics on 32 rats found infected among the 2,573 rats examined. These statistics are tabulated with regard to species, and also as to sex (ratio 1:1.3). The distribution of lesions is discussed and tabulated. It is remarked that, though in human leprosy the testis frequently contains the bacillus, it can very seldom be found there in rat leprosy, and lesions are never found. —H. W. W.

WATANABE, Y. Experimental studies on animals concerning leprosy. Report VIII. On the influence of inoculation with heated emulsion of rat lepra tissue on the growth of rat leprosy. *Kitasato Arch. Exper. Med.* **14** (1937) 125-141.

Preliminary injections with emulsions of rat and human leprosy tissues heated at 70°C. for 1 hour, followed by infective inoculations with fresh rat leprosy emulsion, were made in two groups of white rats. There was a retarded and milder development of lesions, with fewer bacilli, in the animals given the heated rat leprosy emulsion as compared with untreated controls, which is interpreted as evidencing some degree of acquired resistance. If, however, the heated emulsion was given after the infective inoculation there was no manifestation of resistance. The group given the heated human leprosy emulsion did not show any such resistance. —M. B. L.

## BOOK NOTICE

BUTLER, CHARLES S. Syphilis sine Morbus Humanus. A Rationalization of Yaws So-called, for Scientists and Laymen Interested in the Damage to Man from Venereal Diseases. Printed privately, Brooklyn, N. Y., 1936, pp. xii + 137.

This small volume, written in Admiral Butler's well-known trenchant and entertaining manner, protesting that the medical profession tends to slavish following of authority and citing Ibsen's thesis that "a minority may be right, a majority is always wrong," has for its avowed purposes, *first*, the popularization of knowledge of the venereal diseases, *second*, the exposing of the fallacy of the hypothesis that syphilis originated in America, and, *third*, the demonstration of "the unity of so-called 'yaws' and syphilis."

Interesting to the medical profession in general as are the controversial questions indicated, the book is of immediate concern to the leprologist only in part. In the first chapter, entitled "The Story of Syphilis," is a section that deals with leprosy.

## THE MEDLEY WHICH WAS LEPROSY

The medicine of the Bible may be taken as typifying that of centuries before the earliest biblical records and for certainly 15 centuries after the birth of Christ. Leprosy is the one disease which all authorities agree was part of Eurasian-African antiquity. From Leviticus XIII. 2 . . . . B.C., to Matt. VIII. 2, Mark I. 40, and Luke V. 12, leprosy and lepers are spoken of scores of times. . . . Physicians practiced biblical medicine up to the beginning of the 16th Century and a close approximation to it up to the decade 1840-1850, when anaesthesia was perfected which discovery did away with limits to medical progress.

In the so-called Mosaic Law of the 13th Chapter of Leviticus, we cannot recognize clearly *any one disease*. . . . At least five diseases are included in this chapter: (1) true leprosy, (2) psoriasis, (3) types of tinea and certainly sycosis barbae, (4) syphilis (general eruption, alopecia)—"And if there be in the bald head or bald forehead (eyebrows?) a white reddish sore; it is a leprosy sprung up in his bald head or bald forehead." Lev. XIII. 42. This might easily be the corona veneris of lues, (5) lupus vulgaris and other types of tuberculosis of the skin, (6) leishmaniasis of the skin, (7) itch, etc.—We learn from this chapter also that such diseases were up to the priests to cure, *not the doctors*. This practice extended through the Middle Ages. Lev. XIII shows that those who were "unclean," i.e., suffering from mutilating diseases, had to put a cloth over their upper lip (Lev. XIII. 45) (was this to prevent spraying?) and cry unclean when being approached. The Mosaic Law shows that the ancients vaguely sensed the idea that clothing might cause infection in others. Cleansing and burning were alternatives here. Now the history of leprosy as related in the Handbook of Geographical and Historical Pathology by August Hirsch, V. 2, Ch. 1, pp. 1-58, will convince any unbiased investigator of the following: (1) that the Mosaic method of handling leprosy was in effect right down to the 16th Century, (2) that the biblical use of the word "leprosy" was inclusive of a number of diseases with true leprosy one of the smallest from the standpoint of incidence, (3) that the handling of leprosy was in the hands of priests and later of religious sects and was not a function or duty of the physician at all, (4) that consequently no attempt

was or could be made at differential diagnosis for some 2000 years before the beginning of the 16th century, (5) that the 19,000 leper houses with which Christendom was saddled at the beginning of the 13th century housed a vastly greater number of mutilated syphilitics than true lepers, (6) that the better understanding of diagnosis developed during the 15th century was responsible for the depopulation of these leper houses and the apparent falling off in the incidence of leprosy throughout Europe, (7) that the leper house was simply a slight modification of the Mosaic method of driving the "unclean" from the camp or outside the walls of the city.

In the works of that remarkable Jew, Flavius Josephus (37-95), we get one of the earliest layman accounts of antiquity's method of handling venereal diseases. In the translation of his works by William Whiston, Chapter XI of the Book of Antiquities of the Jews is entitled "Of the Purifications" and from this we get an insight into certain medical and quarantine practices which persisted intact down to 1850. Josephus is here speaking of the laws and orders of Moses which were planned to keep the children of Israel in a state of health.

"3. He also ordered that those whose bodies were afflicted with *leprosy*, and that had a *gonorrhoea*, should not come into the city; nay, he removed the women when they had their natural purgations, till the seventh day; after which he looked on them as pure and permitted them to come in again. The law permits those also who have *taken care of funerals*, to come in after the same number of days, is over;... And for the *lepers*, he suffered them not to come into the city at all, nor to live with any others, as if they were in effect dead persons; but if any one had obtained, by prayer to God, the recovery from the distemper, and had gained a healthful complexion again, such a one returned thanks to God, with several sorts of sacrifices; concerning which we will speak hereafter."

From the foregoing the author finds that *gonorrhoea*, the word, is 2,000 years old; that the ancients had a type of leprosy that was curable, and also the incurable type; that *gonorrhoea*, leprosy and syphilis were confused right down to modern times; that leprosy was supposed to be contracted by sexual intercourse; and that lepers were handled by priests and got the "death sentence" right through the middle ages. Leviticus (XIII, 10-15) is held to apply to syphilis rather than leprosy, and it is remarked as strange that *anesthesia*, the most important sign of one type of leprosy, should have escaped physicians until the 14th Century, when it was pointed out by Jean Yperman (1295-1351).

This book should be read by anyone interested in the controversial questions with which it deals. It will not be found dispassionate, but it cannot be uninteresting or lacking in stimulus, whether its conclusions are agreed with or not.

—H. W. W.