CURRENT LITERATURE

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

AMBROSETTI, F. E. Historia de la lepra en la República Argentina. [History of leprosy in the Argentine Republic.] Dia méd. **31** (1947) 1024-1030.

Leprosy did not exist among the indigenous native population of America in the epoch prior to the conquest of the country, but was introduced by the Spaniards and the Portuguese. The first leprosaria were established before the independence. The first antileprosy law in Argentina was promulgated in the province of Corrientes, in 1901. The national law which applies to the entire country, dates from 1926. Mention is made of official actions, such as the establishment of dispensaries and of the four sanatoria, and also the private work of the Patronato de Leprosos.

—G. BASOMBRIO.

AYCOCK, W. L. and GORDON, J. E. Leprosy in veterans of American wars. Amer. J. Med. Sci. **214** (1947) 329-39.

This paper is of special interest at a time when persons infected with leprosy during the war are being met with in Great Britain and other nonendemic areas. The authors refer to the well-known incidence of leprosy in the Southern United States, and describe the nearly complete disappearance of leprosy from Scandinavian immigrants, who settled in the cool climate of Minnesota under good hygienic conditions. This important fact makes it very unlikely that any appreciable number of new infections will arise from persons infected under war conditions and returning to Great Britain. The conditions under which infections usually arise are considered in accordance with present knowledge, and the importance of a study of infection among returning war veterans is pointed out. In the case of the Spanish-American war, 32 war veterans were admitted to the U. S. Marine Hospital at Carville between 1921 and 1940, of whom 30 had served in leprosy endemic areas mostly in the Philippines. The remaining two came from endemic areas of Louisiana and Texas. During the first World War period, 51 war veterans were admitted to the National Leprosarium, only 6 of whom had served in leprosy areas; but of 33 born in the United States all came from the Southern areas where foci of leprosy existed. In 1946, only one of 28 war veterans known to have leprosy had been born outside such infected areas. Both series of cases are tabulated and analysed to bring out the fact that whereas in the Spanish-American war most of the cases of leprosy originated in foci of the disease outside of the U. S. A., in the two World Wars the birthplace of the infected persons was largely in foci of leprosy, including those in the U. S. A. itself. Among 18 cases in the Spanish-American war from other than domestic foci of infection, exposure before the disease appeared ranged from 9 months to 32 years, but the actual dates of infection are unknown. In the first World War, all those infected were born in foci in the U. S. A. and developed the disease within

a relatively few years, or already had the disease on enlistment. At present also 11 cases of the disease had existed in native-born subjects before entering military service; all but one had lived in home foci of infection and the remaining one had infected relatives. Their ages varied from 16 to 42 years against 32 to 66 in the Spanish-American war; this also suggests that in the more recent wars infection occurred in foci in the U. S. A. where the infected persons had been born. Most of the patients from Louisiana have been of French origin.—[Abstract from *Trop. Dis. Bull.* **45** (1948) 186.]

GUILLOT, C. F. Sobre el origen de la lepra en América. [The origin of leprosy in America.] Rev. argentina Dermatosif. **31** (1947) 97-103.

Leprosy was imported into American soil by the Iberian conquistadores and colonizers and the infection was maintained by the continous influx of white immigrants and Negro slaves coming from endemic zones. The spread of the disease was favored by the lack of hygiene, by close contacts, heavy physical work and by intercurrent diseases. The lack of immunity against a disease new to the indigenous population was the reason why they were rapidly infected. Even during the early days of colonization the existence of leprosaria became necessary. —G. BASOMBRIO.

PEYRI, A. La lepra en Monterrey. Datos y comentarios. La diaminodifenilsulfona en cinco casos. [Leprosy in Monterrey. Treatment by diaminodiphenyl sulphone (Promin).] Sugestiones. Mexico. **12** (1947) 22-41.

Monterrey is a town of Nuevo León, a province of Mexico. The author, who is a professor of the Nuevo León University, tells of his experience of leprosy after five years' residence. Nuevo León has a population of 541,147 and the total number of leprosy cases seen in the five years, 1939-44, is given as 44, or 0.8 per mille. Figures are given of previous censuses of the country. In 1927, among 15,151,695 inhabitants there were 1,450 registered cases of leprosy, 22 in Nuevo León; in the quinquennium 1930-34 there were 249 registered, 52 in Nuevo León; between 1935 and 1938 a total of 2,696, of which 14 were in Nuevo León; in the five-year period 1939-44, there were 1,988 registered, 44 in Nuevo León, as stated above. The author has no reliable data on the prevalence in Monterrey itself. There has been no register kept, nor clinical histories at the hospital, although on several occasions leprosy patients have been admitted, and he says "I have gathered from a nurse that in eight years there have been some 10 or 12 patients." He, therefore, limits his remarks to 30 cases which he has had under his personal care and he estimates [? guesses] that the total in Monterrey during the five years is 50. Of his 30, 17 were males, 13 females; two were under 10 years of age and the numbers in succeeding decades were 4, 7, 7, 6, and 4. Five were married, but in no instance were husband and wife both infected, and none of the 30 was aware of having lived with a leprous patient or resided in a focus of high endemicity; most lived in the country and were not overcrowded. Of his 30, 16 were of the lepromatous form, 4 were tuberculoid and 10 "not characteristic". [Later he states "17 were lepromatous, 13 neural".] Their environment, sanitarily, was deplorable; there is no control at all, they do what they like where they like, they wander about unchecked, cross the frontiers and recross them unques-

tioned. The first symptom noted was hypochromic blotches (5), nodules (5), patches of anaesthesia (5), epistaxis (4), and other signs in smaller numbers. To five of the patients, the author gave diaminodiphenyl sulphone (DDS) [promin] intravenously, in doses of 2 gm. daily for six days in the week, with an interval of 15 days every two months. In all of them there was improvement after a total dosage of 200-300 gm.; in two, bacteria were no longer found, but the drug did not prevent the appearance of a leprous reaction.—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1075.]

MUÑOZ RIVAS, G. Pulgas, suelos y lepra. [Fleas, soil and leprosy.] Primer Congreso Inter-American de Medicina, Rio de Janeiro. (1946).

This interesting article is, in essence, an amplification of work published by the author in 1942 [*Trop. Dis. Bull.* **40** (1943) 151]. He considers in turn the following points: (*1*) *M. leprae* and the larvae of fleas. Among 341 captured in 121 leprosy dwellings he found acid-fast bacilli indistinguishable from Hansen's bacillus, in the stomachs of 142, or 41.6 per cent, but none in 506 larvae captured in healthy dwellings, at least in dwellings not inhabited by leprous persons. (*2*) *M. leprae* and adult fleas. Among 1,627 fleas (*P. irritans*) which had fed on leprosy patients, 187 (11.4 per cent) were positive, whereas none was found positive among 575 fleas captured in sites presumably free from infection of leprosy. Further, of 338 adult *P. irritans* bred from experimentally infected larvae, 8 (2.3 per cent) had the organisms in their stomachs, whereas none was found among 177 fleas bred from uninfected larvae. (*3*) Does the bacillus undergo evolution in the digestive canal of *P. irritans?* No definite evidence of this has been obtained. (*4*) Inoculation trials. Inoculation of young *Macaca* and *Cebus* monkeys with triturated fleas which had fed on leprous patients, or with insect dejecta or triturated fleas bred from infected larvae caused gland enlargement and temporary presence of acid-fast bacilli, and in two of the monkeys an increase in rate of corpuscle sedimentation. (*5*) Incidence of leprosy and prevalence of fleas. Among 3,399 cases reported in 17 Departments of Columbia, in Santander with 1,052 cases, Boyaca with 954, Cundinamarca with 497, fleas are recorded as "very numerous"; in North Santander with 236, as "numerous"; in others, with 108 or less, they are "scarce". (*6*) Do other insects play a role in the transmission of leprosy? Ticks, lice, mites, bugs, Simuliidae, other diptera, and fleas are discussed briefly, with reference to the literature, but no first-hand evidence is adduced. (*7*) On acid-fast bacilli and attempts to cultivate them from the soil and from flea larvae in dwellings inhabited by leprous persons. Remarks are made on certain organisms thus cultivated. This article is of interest as a further study tending to incriminate the human flea, *P. irritans*, as a, if not the, vector of *Mycobacterium leprae*. Worthy of note is the statement of Dr. Juan de D. Carrasquilla who, in 1905, wrote: Leprosy is not contagious in the same way as diseases such as smallpox; it is infective and the agent is the flea." (La lepra no es contagiosa a la manera de otras enfermedades... como la viruela; es infectiva y el agente de infección es la pulga.)—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1072.]

COCHRANE, R. G. Child leprosy. Leprosy Review. **18** (1947) 49-53.

This article was written for a special number of *Leprosy Review*, in

connection with the retirement of Dr. E. Muir. After paying tribute to the long and valuable work of Muir, the author records once more his well-known views on child leprosy and states that he is in agreement with early emphasis laid on the importance of the subject by Rogers and by Muir. Only a certain amount of child leprosy is serious from the preventive aspect in South India, for a significant proportion of cases are benign and non-progressive. Practical consideration need only be given to (1) Simple neural leprosy, and (2) Prelepromatous lesions, the latter comprising, perhaps only five to ten per cent of all child cases, which develop into lepromatous leprosy late in life and mostly arise in families where there is the closest contact from early life with open cases. These cases require closer attention in order effectively to control them. He thinks that the corium of the skin is the site of active development of lepra bacilli and that those in the reticulo-endothelial system are mainly saprophytes living in a state of commensalism. The benign cases in children do not require prolonged treatment, but every effort should be made to prevent the occurrence of deformities.—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1073.]

RADNA, R. Sur les formes de la lèpre dans le distric de l'Ucle. [Forms of leprosy in the l'Ucle district.] Arch. méd. belgica **1** (1946) 536.

In his travel during a mission in the region of Stanleyville, the author had the opportunity of submitting the inmates of isolation villages to clinical and bacteriological examinations. Of the children, the majority (86%) were of the neuro-macular form. Most of the adults presented the mutilating form. According to information from old natives, the disease has spread since the Arab invasion and the arrival of thé Europeans (years of war and immigration). In order to improve the present control measures, the author insists on the segregation of the most contagious cases, nodular and mixed. The others could be grouped in colonies specially built for this purpose. —[From abstract in *Fontilles* **2** (1948) 75.]

LLANO, L. and GUILLOT, C. F. Breves consideraciones epidemiológicas sobre la lepra en la República Argentina. [Brief epidemiological observations on leprosy in the Argentine Republic.] Rev. argentina Dermatosif. **31** 1947) 357-359.

The number of cases is 12,000 for a population of 14,130,871. The geographical distribution is in three zones; 81.3% are in the coastal areas, 17.6% in the central parts, and 1% in the mountainous areas. The lepromatous forms predominate in the coastal zones by from 80 to 64%. There are 1,420 hospitalized cases. G. BASOMBRIO.

MOISER, B. Hansen's disease (leprosy) and cockroaches. East African Med. J. **24** (1947) 230-36.

This paper deals with zoological facts regarding cockroaches. The author admits that he had never seen these insects bite man, and failed to get them to do so in daylight, but he accepts statements of others to the effect that they bite at night. They are especially numerous in damp hot climates. In African huts, spraying with 5 per cent D. D. T. in kerosene kills them in a dosage of a gallon per 100 sq. feet, but the eggs are protected by a chitinous envelope; the cycle from the ova through four or more nymphal stages to adults occupies a year. A detailed description is given of the anatomy of cockroaches and it is stated that the wounds

made by the chitinous mouth parts as a result of biting are characteristic, being circular or oval and varying from the size of a pin's head to 4 or 5 mm. in diameter. A method of dissecting the insects is given and the appearances of acid-fast bacilli in their gut are described as in previous papers by the same author [*Trop. Dis. Bull.* **44** (1947) 725]. The occurrence of Spirochaeta recurrentis and Rickettsia in these insects is referred to, as well as helminths and certain pathogenic bacteria.—[Abstract from *Trop. Dis. Bull.* **45** (1948) 91.]

BALINA, P. L. Progressos de la leprologia. [Progress of leprology.] Rev. argentina Dermatosif. **31** (1947) 253-257.

This paper was read before the Academy of Medicine in November 1946. The South American classification of the clinical forms is an important advance. Because of the benign character of the tuberculoid forms, the author believes it unnecessary to tell some of the patients the true diagnosis, it being advantageous to keep it secret from the patient and even his family. In Argentina, it is pointed out, there exist excellent dermato-leprologists, who are capable of directing the antileprosy campaign. —G. BASOMBRIO.

MUIR, E. Classification of leprosy cases. Leprosy Review. **18** (1947) 73-82.

The importance of a general adoption of a sound classification of leprosy cases is stressed and the South American division into the two characteristic lepromatous and tuberculoid types—together with a third uncharacteristic chronic inflammatory one, which may develop into one of the typical ones—is discussed and illustrated by a diagram. This represents a doorway below into the intermediate uncharacteristic form, which leads off laterally into lepromatous on one side and tuberculoid on the other. The well-recognized microscopical characters of the typical forms and the positive lepromin test in tuberculoid and negative ones in lepromatous cases is stressed. The third intermediate type is subdivided (*a*) initial, in the course of passing into one of the typical forms; (*b*) intermediate, passing from one of the characteristic types into the other; or (*c*) vestigial, passing out of one of the characteristic types on the way towards recovery. The chief indication of an uncharacteristic case is one of exclusion, its failure to belong to either of the other two types. The lesions are usually flat and without the thickening of the skin of lepromatous cases, and they require a good light for recognition. Bacilli are few or nil in them and the lepromin test negative or moderately positive, while they rarely show a reactionary phase. The author holds that tuberculoid cases may be transformed into lepromatous ones, but only infrequently. The reverse change is of more doubtful occurrence. The paper concludes with a list of points to be noted in making a clinical examination, together with forms for case taking, which should be read in full by those interested.—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1073.]

COELHO, J. Nódulos hipodérmicos, seudosarcoides de etiología leprosa. [Hypodermic and pseudo-sarcoid nodes of leprous etiology.] Rev. brasileira Leprol. **13** (1945) 287.

This history with photographs of two cases confined for a considerable length of time in a colony, showing hypodermic nodosities of the leprotic

hypodermic sarcoid type similar to those described by Baliña, Schujman and Herrera.—[From abstract in *Fontilles* **2** (1948) 68.]

ROTBERG, A. Areas de pele injectadas com lepromina e protegidas contra leprides tuberculoides reaccionaies. [Skin areas injected with lepromin and protected against reactional tuberculoid leprids. [Rev. brasileira Leprol. **13** (1945) 69.

At a meeting of Brazilian leprologists, held at the Santa Fe leprosarium, in June 1945, the author presented the case of a patient, 32 years old, with "incharacteristic" macular lesions and with negative Fernandez and slightly positive Mitsuda reactions, in which 11 months after lepra reaction appeared with large, greatly infiltrated erythematous plaques. The sites where the allergic (test) reactions had occurred were not affected, in spite of the length of time since the residuae of the reactions had disappeared. The author described several identical phenomena found in different infections, described by Debre, Bonnet, Broca and Keime and Moro.—[From abstract in *Fontilles* **2** (1948) 66.]

SOUZA CAMPOS, N. and RODRIGUEZ DE SOUZA, P. Leprides sifiloides e sifílides leproides. Lepra e sifilis. [Syphiloid leprids and syphilid leproids.] Rev. brasileira Leprol. **13** (1945) 77.

An extensive article illustrated with excellent photographs and microphotographs of lesions in clinical cases of syphilis resembling leprosy, and on the other hand lesions in leprosy resembling syphilis, which cause confusion in diagnosis. The authors believe that it is more common to think of syphilis than of leprosy, and that it is important to bear these similarities in mind since inadequate treatment may give rise to serious results as regards prophylaxis.—[From abstract in *Fontilles* **2** (1948) 66.]

ARTOM, M. Bases teóricas da reacção lepromínica. [Theoretical bases of the lepromin reaction.] Rev. brasileira Leprol. **14** (1946) 91-101.

The author discusses the present ideas regarding the relation between allergy and immunity, describing the difference between the allergy of hypersensibility and immunity defense, the former of which is regarded as a general humoral phenomenon and the latter as one of the reticuloendothelial system. Regarding interpretation of the lepromin test, he believes the early reaction to be an allergic process, and the late one as a process of immunity comparable to the Koch phenomenon in experimental tuberculosis, long believed as a typical expression of the process of immunity. The lepromin reaction he believes, is one of the most clear examples of the necessity of separating allergy from immunity, and at the same time indicating the close relationship between the two phenomena.—[From abstract in *Fontilles* **2** (1948) 69.]

DE SOUZA-ARAUJO, H. C. Clamp method to obtain cutaneous lymph in the diagnosis of leprosy. Leprosy Review. **18** (1947) 44-5.

The author describes a modification of the Lleras method of obtaining skin lymph, which he has used successfully in Brazil. The area of skin is gripped with Pean's haemostatic clamp, which is tightened according to the thickness of the skin. The area becomes quite ischaemic within one minute. It is then punctured deeply at four points with a large needle and four drops of clear lymph exude, which are smeared on a clean slide with a vaccination pen. The slide should be covered and left to dry for a few hours and then stained by the Ziehl-Neelsen method. This modifica-

tion, by obtaining four samples of lymph, increases the chance of finding *Myco. leprae.* Where there is dense subcutaneous tissue, *e.g.* in the back or buttocks, two clamps are used. In diffuse lepromatous lesions, enormous numbers of acid-fast organisms are found and they stand out clearly, in the absence of tissue elements. The author was able to find bacilli in all cases of tuberculoid leprosy, even in bundles or globi, by this method where ordinary biopsy specimens failed to show them. He has found the Lleras technique excellent for examination of cases in general control of treatment and parole. —[Abstract from *Trop. Dis. Bull.* **44** (1947) 1072.]

IGNACIO CHALA H., J. Lesiones dermatológicas y nerviosas en la lepra tipo tuberculoide. [Cutaneous and nervous lesions in tuberculoid leprosy.] Rev. Facul. de Med. Bogotá. **15** (1946) 9-74. English summary.

[This is a full and important paper and gives an excellent summary of the skin lesions in this type of leprosy, based on a study of over 500 cases of the disease in Colombia. No mere abstract would do it justice and those interested would do well to consult the original. The nervous lesions, though mentioned in the title, are barely considered.] The article is subdivided into six sections, exclusive of a summary and a bibliography. Section I deals with generalities, notably the classification of types and forms of leprosy. The author is not altogether in favour of the "Cairo" classification; he prefers to divide patients into lepromatous, tuberculoid, and the non-characteristic in which he would place the "prelepromatous" and the "pretuberculoid". Section II, which is well illustrated by 13 photographs, treats clearly and without redundancy of the dermatology of the tuberculoid lesions, in the skin and—the subcutaneous cellular tissue; the infiltrated erythematous maculae, the dyschromic erythematous patches, the papular and tuberoid forms, the miliary and perifollicular lichenoid lesions and the sarcoid types and nodular elements. They differ fundamentally from the reddish pigmented maculae of the nervous form and may be classified into four main types, which may be further subdivided: (1) *Macular*: infiltrated erythematous patches with well-marked border; hypochromic centres where the skin appears to be almost normal with an erythematous periphery. This is common in formes frustes and important for early diagnosis. (2) *Papuloid*: the papules are like those of syphilis, common in adolescents and adults, annular and they may be flat or lichenoid. (3) *Simple tuberoid*: resembling lupus vulgaris or Boeck's sarcoids. (4) *Nodular*: like the subcutaneous sarcoids of Darier-Roussy. The first three are more common than the last. The author next treats of lesions other than those of the skin in tuberculoid leprosy, such as those of the peripheral nerves, the mucous membranes, glands and bone and the "tuberculoid leprous reaction" usually of brief duration. In Section IV the dermatological aspect of tuberculoid leprosy in infants is specially considered. In infants the nodular, papular and tuberoid forms may all be seen; in children over two years of age the papuloid is the most common. It evolves slowly and after some months softens and lessens in size and may die away leaving only a reddish rugose macula. Later still these lose their colour, the skin becomes thin and a depressed scar-like lesion with a definite edge remains, the so-called "vermicular scar of Rabello." Other forms not infrequent in infant tuberculoid leprosy include the lichenoid with isolated or confluent follicular papules

in the middle of apparently healthy skin on the arms and buttocks, associated sometimes with dyschromic patches. Section V is devoted to the diagnosis of tuberculoid leprosy from lupus vulgaris, syphilis, erythema multiforme, seborrhoeic eczema and the tuberculides. The best aids in diagnosis are the changes in sensation, the finding of Hansen's bacillus and the lepromin test. The next Section gives brief details of 36 cases, all in adults, except one which was in a child of 8 years. In general, this tuberculoid form of leprosy is the "clinical expression of a specific resistance to leprosy infection" and bacilli are usually few. The lepromin test is positive and diagnosis is aided by the concomitant presence of changes in peripheral sensation. The histamine test is of diagnostic value in some cases. If neuritis occurs in the tuberculoid type a neuroma, a sort of "tuberculous gumma", will be found in the nerve involved. These tuberculoid cases are not infective and therefore constitute no menace to the public health. — [Abstract from *Trop. Dis. Bull.* **44** (1947) 430-31.]

MARIANO, J. Tumor mixto de parótida en un hanseniano. [Mixed tumor of the parotid in a leprosy patient.] Arq. Mineiros Leprol. **6** (1946) 163.

The author describes a leprous patient with a parotid tumor, histological study of which revealed a neoplasm of mixed structure with elements of adenomatous, myxomatous and fibrous aspects and a small field with atypical certilaginous context. —[From abstract in *Fontilles* **2** (1948) 73.]

ALVAREZ LOVELL, L., RODRIGUEZ PEREZ, A. P. and PUCHOL, J. R. Alteraciones histopatológicas del nervio y quiasma óptico en la lepra. [Histopathological changes of the optic nerve and chiasma in leprosy.] Actas Dermosif. **38** (1947) (?).

Histopathological lesions of the optic nerve and chiasma in autopsy material from two leprosy cases are described. The degenerative process varies from region to region. Generally, there were clear indication of degeneration of nerve fibers in the form of fragmentations, beads, and formation of retraction balls. Total atrophy was found on reaching the periphery of the chiasma. The microglia and oligodendroglia present a typical example of acute edema, i.e., enlargement and vacuolization of the cellular body, irregularities of the nucleus, and fragmentation of the prolongations. It is believed that all these are due to nonspecific response of the nerve center to the general intoxication.—[From abstract in *Fontilles* **2** (1948) 82.]

BARMAN, J. M. Absorción de los ésteros etílicos y bencílicos del aceite de chaulmoogra administrados por vía duodenal. [Absorption of the ethyl and benzyl esters of chaulmoogra oil administered by the duodenal route.] Rev. argentina Dermatosif. **31** (1947) 103-107.

This experimental work consisted of: (1) The investigation of the fats in the fecal matter of cases before and after the ingestion of the derivative of chaulmoogra oil administered by duodenal tube and study of the fats dissolved in the blood; (2) collection of the lymph by canalization of the thoracic duct of dogs and investigation of the fats during the period of absorption of the same derivatives administered by the same way, with study of the fats dissolved in the blood. From these experiments, it is deduced that a great part of the esters are absorbed in the duodenum and are diffused by way of the blood. —G. BASOMBRIO.

GONZALEZ MEDINA. Contribución al estudio de la lepra tuberculoide. [Contribution to the study of tuberculoid leprosy.] Actas Dermosif. **38** (1947) 983.

Tuberculoid leprosy is not a class with individuality opposed to the lepromatous, but only an evolutive stage of the disease preceding the false lepromatous. Accordingly, the mild characteristics of tuberculoid leprosy could only be considered a stage, but not as the whole disease itself. In a follow-up of the development of the different phases in a patient, the author has seen the definite transformation of tuberculoid to lepromatous leprosy. Difficulties in diagnosis are common in early stages of tuberculoid leprosy, and in the nonspecific forms of the disease where the tuberculoid cases were observed. It is regarded as necessary, in antileprosy control to establish leprosaria for the confinement of patients with mild leprosy, or leprosy of transitory mildness, including tuberculoid cases.—[From abstract in *Fontilles* **2** (1948) 81.]

GUILLOT, C. F. and MANJON, F. Lipasas en la piel normal y en la piel leprosa. [Lipases in normal and leprous skin.] Rev. argentina Dermatosif. **31** (1947) 206-211.

(1) Extracts of normal human skin and of leprous skin have both an evident lipasic activity. (2) The activity of the cutaneous lipases of healthy humans and leprosy patients is very similar. (3) It seems that leprous infection does not alter the lipasic power of the skin, whatever the clinical form of the disease. (4) Differences between observations are due, in the authors' opinion, to individual and regional variations of the cutaneous conditions rather than to the disease itself. (5) The fact that observations were made on patients under treatment with chaulmoogra oil is pointed out. —G. BASOMBRIO.

OBERMAYER, M. E. Diffuse Lepra. [Diffuse leprosy.] Ann. Western Med. and Surgery. **1** (1947) 225-31.

The author has had a large experience of this dangerous and easily overlooked form of lepromatous leprosy, since it accounts for as many as 60 to 70 per cent of all lepromatous cases in parts of Mexico where he works, and 17 per cent in other Mexican areas. As the disease develops slowly, with indefinite and not easily recognized symptoms, it easily escapes detection, yet is highly infective. After discussing the differences between lepromatous and tuberculoid types of leprosy, the author describes the pure diffuse lepromatous form. Cutaneous nodules are absent and there is a diffuse infiltration of the skin of the whole body and a peculiar lepra reaction described by R. Lucio as an erythema necroticans. Lucio called this form "spotted" or "Lazarine" lepra as early as 1851, and Latipi studied it further in Mexico in 1937. The unique lepra reactions appear three or four years after the onset of this type of the disease as tender and painful erythematous and slightly infiltrated small macules on the extremities and face, which develop central necrosis leaving superficial, sharply circumscribed atrophic scars; these lesions are illustrated by five photographs. Osseous destruction may result in a saddle nose, but the eyes are not affected. The eyelashes and eyebrows are frequently lost and alopecia of the scalp may follow. Progressive weakness ensues with death, occurring after an average of eight years; the Mitsuda reaction remains negative throughout, indicating absence of resisting power. Numerous lepra bacilli are found in the diffusely infiltrated skin in all parts of the body; unfa-

vorable reactions follow the use of chaulmoogra or iodides.—[Abstract from *Trop. Dis. Bull.* **45** (1948) 189.]

PARDO-CASTELLO, V., TIANT, F. R. and PIÑEYRO, R. Nerve-lesions of leprosy. Arch. Dermat. and Syph. **55** (1947) 783-9.

The pathological and bacteriological aspects of leprosy as it affects the peripheral nerves is dealt with. In a previous paper, the authors [*Trop. Dis. Bull.* **40** (1943) 785] insisted on the presence of nerve lesions in almost every case of leprosy, and on the importance of distinguishing the lepromatous from the tuberculoid types. They also pointed out that the structure of the lesions of the nerves coincides with that of the lesions of the skin. These points are further emphasized in the present paper. In lepromatous cases, the extensive skin lesions are accompanied by clinical involvement of large trunks such as the ulnar, median and saphenous nerves more especially; but the most remarkable clinical neuritis is found in tuberculoid leprosy, both in conjunction with skin lesions and at times almost exclusively affecting enlarged terminal nerves and nerve trunks, with cutaneous anaesthesia and muscular atrophy. Sections of ulnar nerves in lepromatous cases show cellular infiltration throughout, including the perineural tissues, together with atrophy of the nerve fibres and the presence of enormous numbers of lepra bacilli. On the other hand, in tuberculoid cases both peripheral and trunk nerves show thick infiltrations of lymphocytes, epithelioid and giant cells, but few or no lepra bacilli as in tuberculoid lesions of the skin. Caseation or abscess formation may result, with complete destruction of the neural tissues. The authors are, therefore, of the opinion that the so-called neural leprosy belongs to the tuberculoid type, with which it also corresponds bacteriologically and immunologically in giving positive lepromin reactions. In the discussion Dr. Braulio Sáenz expressed disagreement with this view.—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1074.]

SAYAGO, G. Resultados de pruebas tuberculinicas en hijos de leprosos del preventorio "Amparo Santa Cruz" de Porto Alegre (Brasil). [Tuberculin tests in children of leprosy patients in the Amparo Santa Cruz (Brazil).] Hospital. Rio de Janeiro. **32** (1947) 163-4.

The English summary appended to the paper is as follows: "1. The tuberculin index of 121 children born from leprous parents present values comparable to those of other human groups at the same ages (58.4 per 100 reactors in sons of leprosy patients and 52.9 per 100 reactors in children of an orphans' asylum). 2. In 42 sons of leprous fathers nonreactors to the tuberculin test, the Mitsuda reaction (lepromin reaction) was positive in 92.8 per 100."—[Abstract from *Trop. Dis. Bull.* **45** (1948) 92.]

TISSEUIL, J. Deux types de lèpre cutanée tertiaire, dermique rouge en nappe hypodermique blanche en nodule. [Two types of cutaneous tertiary leprosy.] Bull. Soc. Path. Exot. **40** (1947) 147-9.

The author describes red and white tertiary cutaneous leprotic lesions which he thinks are liable to be confused. The red form occurs particularly on the body in the form of extensive, isolated thickenings or nodules of a yellow or red colour showing necrosis and very numerous lepra bacilli on section, and it may cicatrize to leave white radiating scars; it tends to develop rapidly. On the other hand, the white lesions are more frequent on the face and extremities in the form of isolated nodules up to the size

of an almond; these are situated in the subcutaneous tissue and freely movable under the dermis, which is pale white. They contain numerous polynuclear cells and lepra bacilli and tend to soften and discharge through the skin, leaving ulcers which heal slowly. They are easily excised and have a fibrous coating; they discharge many bacilli and have a longer duration than the red form.—[Abstract from *Trop. Dis. Bull.* **45** (1948) 189.]

ZANETTI, V. Coloration en série du bacille de Hansen et dépistage des lépreux bacillaires. [Staining of leprosy bacilli and diagnosis of leprosy.] Ann. Soc. Belge de Méd. Trop. **27** (1947) 179-86.

This paper deals with the following modification of the carbol-fuchsin method of staining lepra bacilli: First fix by heat and stain for 20 minutes with a cold solution consisting of 1 gm. fuchsin, 10 cc. 95 per cent alcohol, 5 cc. crystallized phenol, made up to 100 cc. with distilled water. Wash quickly and decolourize for 7 minutes in 0.5 per cent solution of sulphuric acid. Counterstain for one minute with a solution consisting of 0.15 gm. toludine blue, 10 cc. 95 per cent alcohol, 3 gm. crystallized phenol, made up to 100 cc. with distilled water. Wash and dry. The bacilli are stained red with a background of violet. The acid-fast bacilli are estimated in fifty fields in five specimens taken respectively from the ear, the forehead, the cheek, a leprous plaque and from healthy skin. The results of 2,620 such examinations are discussed. In 252 of these, clumps of bacilli were found in variable numbers in lepromatous cases. The negative cases were clinically of the nerve type, a few reacting cases of which were positive. Repeated examinations show that when very few bacilli are present, they tend to disappear under treatment in four to six months, but in a few cases they increase in numbers with passage of the case into the lepromatous type. In the 252 positive cases showing clumps of bacilli, they were only found in the ears in 73, or 28.97 per cent; in both the ears and other parts in 134, or 53.17 per cent; and in the remaining 45, or 17.86 per cent, in other places only. The ear is the site of election for bacteriological examinations. This method gave better results than are obtained by hot solutions of carbol fuchsin and as good as those obtained by Hallberg's method [*Trop. Dis. Bull.* **44** (1947) 591].—[Abstract from *Trop. Dis. Bull.* **45** (1948) 91.]

CONTRERAS, F. and JAQUETI, G. La reacción de Mitsuda en sujetos alejados de ambiente leprógene. [The Mitsuda reaction in individuals from nonleprous surroundings.] Fontilles **2** (1948) 23-26.

Lepromin reactions were performed on 100 patients (50 of each sex) with dermatosis and venereal diseases. The authors obtained 44 partially or totally positive reactions. No influence on the reaction was evidenced by sex, age, or residence, present or previous, of the patients in endemic areas. The largest number of positives and most intensive reactions were observed in tuberculosis of the skin (lupus, papulonecrotic and verrucous tuberculides and scrofuloderma). Varicose ulcers follow in order of frequency, and a few isolated and rapidly positive reactions in syphilis, psoriasis, eczemas and certain dermatoses. An intensive reaction persisting for 15 days was seen in a case of tertiary syphilis, and in one of tabes dorsalis. Such intensive and persistent positive reactions lead one to suspect that the organism has been sensitized by some of the mycobacteria. From the high percentage of positivity found (44%) in patients free from leprosy, it is

believed that this test has no value in the diagnosis of leprosy.—[From author's summary.]

DE DULANTO, F. La biopsía por aspiración de la médula ósea en la lepra. [Biopsy by aspiration of bone marrow in leprosy.] Fontilles **2** (1948) 4-22.

Intravital study of the bone marrow in 21 patients by aspiration revealed the presence of Hansen bacilli in 44 per cent of lepromatous cases, two of them showing typical Virchow cells with abundant globi. Microscopical examination for bacilli in reactional leprosy was always negative. Changes found in the myelogram are given, the data being obtained by histologic examination of the aspirated fragments of marrow, and a pathogenic interpretation of the blood changes seen in the diseases given. Lastly, the necessity of puncture for the orientation of the treatment with sulfone derivatives was pointed out.—[From author's summary.]

NEVES, A. Sarna crostosa. "Norwegian scabies." Rev. brasileira Leprol. **13** (1945) 251.

Two cases of this variety of scabies in lepromatous patients confined in the colony of Santa Isabel are described. The author agrees with the opinion that the ectoparasites of this variety of the condition are similar to that of common scabies, and that the anesthesia of leprosy does not influence the appearance of lesions.—[From abstract in *Fontilles* **2** (1948) 67.]

SOUZA LIMA, L. and CASTRO CERQUEIRA, G. Terápeutica experimental da lepra pella solutiazamida. [Solutiazamide in experimental therapy.] Rev. brasileira Leprol. **13** (1945) 97.

In an 8 months experiment with solutiazamide (phenyl-sulfamidethiazol-x and disulphate of sodium) manufactured in Brazil, in 100 lepromatous cases, 50 of moderate and 50 of advanced form, the tolerance was found entirely satisfactory. The results were highly favorable in several advanced cases, in which the progress of the disease was prevented. Both lepromas and lepromatous plaques and subcutaneous nodules had regressed, appearing flat and level. Lepromatous ulcerations healed rapidly, and in several cases plantar perforating ulcers also healed. Both ocular and nasal lesions have also improved considerably.—[From abstract in *Fontilles* **2** (1948) 67.]

CAPURRO, E. I. Primeros intentos de utilización de las altas dosis de vitamina D en el tratamiento de la lepra tuberculoide a forma reaccional. [First attempts in the utilization of massive doses of vitamin D in the treatment of reactional tuberculoid leprosy.] Secretaria de Salud Publica, Instituto Central de Dermatologia, 1946. (Publicación en hoja mimeografiada.)

The cases described encourage one regarding the benefits to be obtained from massive doses of vitamin D, in the treatment of the tuberculous reaction. Intensive study, utilizing methods of analysis like the erythrocyte sedimentation test, permits the establishment of a graphic picture of the improvement more scientific than do simple clinical observations.

—G. BASOMBRIO.

COCHRANE, R. G. Sulphone treatment of leprosy. [Correspondence.] Brit. Med. J. July (1947) 110-11.

This letter is written to protest against "a tendency for treatment to receive precedence over prevention" and to sound a warning note against

the belief, apparently held in some quarters, that "the leprosy problem could be solved by curative measures alone." [The author does not indicate who holds such a view, nor can the reviewer think of one such in his extensive acquaintance with the literature.] The author goes on to state the well-known facts that promin is toxic and diasone may produce reactions, so both should only be used at present under carefully controlled conditions. He further states that sulphetrone is the least toxic of this class of drugs, but that it is not likely to be on the market for some time. —[Abstract from *Trop. Dis. Bull.* **44** (1947) 1075.]

MOM, A. M. Benadryl en la reacción leprosa lepromatosa y en la sensibilización sulfónica. [Benadryl in the lepromatous reaction in leprosy and in sulfonamide sensitivity.] Rev. argentina Dermatosif. **31** (1947) 188-192.

Six cases of acute lepromatous reaction in leprosy, among patients 22 to 42 years of age, were treated exclusively with benadryl during a period of 6 to 10 days, with rapid recovery and excellent results in four of them. In the other two the effect was less noticeable, although in one of them with one acute attack following another the treatment stopped the succession of attacks and permitted the continuation of sulfone therapy. Three other lepromatous cases developed marked sensitivity to sulfone drugs (promin, diasone) with the appearance of severe cutaneous exanthemata, in one of them accompanied by an attack of bronchial asthma. In these cases the usual specific methods of desensitization failed. Benadryl was administered in doses of 150-250 mg. daily, and after two days the sulfone treatment was resumed. There were no further accidents, and two of the patients were able to stop taking benadryl after 10 days, without recurrence of signs of sensitivity. The other one continued receiving 50 mg. of benadryl half an hour before the injection of promin, with satisfactory results. The linking of the lepromatous reaction in leprosy and sulfone sensitization with the action of histamine is discussed. —G. BASOMBRIO.

PEREIRA, A. C. Tratamiento con lesiones tumorales en lepra reactional. [Treatment of tumoral lesions in lepra reaction.] Arq. Mineiros Leprol. **7** (1947) 13.

This article deals with lepra reactions observed in closed and noninfectious patients, studied from the clinical and therapeutic points of view, in the tuberculoid, incharacteristic and lepromatous forms of the disease. The treatment was the same one used generally in patients with allergic dermatosis, the condition being regarded as an allergic manifestation. One case cited was cured with daily 2 gm. doses of sodium lactate.—[From abstract in *Fontilles* **2** (1948) 73.]

SCHUJMAN, S. El valor del chaulmoogra en el tratamiento de la lepra. I. Diferente evolución de los casos de lepra tuberculoide en los adultos tratados y no tratados con la medicación chaulmóogrica. [The value of chaulmoogra in the treatment of leprosy. I. Difference in evolution of the cases of tuberculoid leprosy in adults treated and not treated with chaulmoogra.] Prensa méd. Argentina **34** (1947) 27 pp.

Tuberculoid leprosy in adults does not tend to regress spontaneously or definitively. Treatment with chaulmoogra oil benefits or cures this type of patient. If one extirpates surgically a single circumscribed tuberculoid

lesion, without general chaulmoogra treatment, the lesion is liable to reappear. This paper is one of a series in which the efficacy of the old medicament is defended. —G. BASOMBRIO.

SCHUJMAN, S. Tratamiento chaulmóogrico intensive (intramuscular o intradérmico) en los casos lepromatosos no beneficiados con las dosis bajas de la misma medicación. [Intensive chaulmoogra treatment (intramuscular or intradermic) in lepromatous cases showing no improvement with low doses.] Prensa méd. Argentina **12** (1948) 501-505.

In order to appreciate the therapeutic action of chaulmoogra, the author selected a group of 30 lepromatous cases treated for many years without results with low doses of that medicament, and submitted them to intensive chaulmoogric treatment. After receiving high doses of chaulmoogra (a minimum of 90 cc. weekly) for 8 months, only one case remained stationary, while the remaining 29 (97%) were improved. The degree of improvement varied from the reduction in size and quantity of the lesions to disappearance in the majority of them; clinical improvement was always accompanied by bacteriological improvement (fragmentation of bacilli and an evident reduction in their number). Based on the facts observed, the author arrived at the following conclusions: (1) Failures of chaulmoogra in the treatment of leprosy are due in the great majority of cases to the employment of low doses. (2) Chaulmoogra and its derivatives used in high doses have an evident therapeutic activity, evidenced both clinically and bacteriologically. (3) Investigations as to how chaulmoogra acts should be continued, especially to discover its most active nucleus, with a view to increasing its therapeutic efficacy.—[Author's summary.]

CHAUSSINAND, R. A propos des essais de culture du bacille de la lèpre. [Attempts at culturing leprosy bacilli.] Ann. Inst. Pasteur. **73** (1947) 433-8.

This is a valuable summary of over 1,000 attempts to cultivate lepra bacilli in the course of ten years, with suggestive tests for the true organism to enable others to avoid the common fallacies of the hundred or so former workers who have incorrectly claimed success. Soule and McKinley appear to have come nearest, by obtaining minute colonies of the causative organism, but no one has obtained a series of subcultures. Readers should consult the original for a bibliography of former attempts and for a summary of the numerous culture media unsuccessfully employed by the present author. He concludes that workers have been misled through an apparent increase in the bacilli, with gradual dissolution of leprous tissue cells inoculated on media, and the carrying over of many of them on subculture. What may possibly have been a slow appearance and increase of colonies of acid-fast bacilli with the characteristic appearance and arrangement of Hansen's bacillus may have been obtained occasionally, but subculture has proved difficult or impossible. The author advises the use of the following two tests to determine whether any apparent cultures are true leprosy bacilli or not. (1) The intradermal injection of suspensions of Hansen's bacillus killed by heat gives negative local reactions after two weeks in lepromatous leprosy, and positive reactions in tuberculoid leprosy. On the other hand, similar injections of tubercle, paratubercle or Stéfansky's rat leprosy bacilli give more or less intense positive reactions in the case of all lepromatous persons who are sensible to tuberculin. (2) When

Hansen's bacilli are injected into the general body cavity of the larva of the wax moth (*Galleria mellonella*) they are phagocyted by giant cells, but are digested very slowly so that they can be stained and easily recognized several days later in the insects. But tubercle bacilli and saphrophytic acid-fast paratuberculosis bacilli, formerly so frequently mistaken for Hansen's bacillus, are rapidly disintegrated and disappear from the giant cells within a few days. The use of these tests will enable the true character of any cultures obtained from leprous tissues to be determined. [The larva of the wax moth *Galleira mellonella*, is regarded as the "guinea pig" of insect microbiology, and has been utilized in phagocytic studies of many bacterial species, owing to its varying capacity for phagocytic response to the inoculation of bacteria and other foreign particles. See also CAMERON, J. *Path. and Bact.*, **38** (1934) 441 and STEINHAUS, *Insect Microbiology*, (1946) 566. —[Abstract from *Trop. Dis. Bull.* **45** (1948) 187.]

CHAUSSINAND, R. Contribution à l'étude de la morphologie du bacille de Hansen. [The morphology of Hansen's bacillus.] Ann. Inst. Pasteur. **73** (1947) 660-65.

In the course of his prolonged studies the author has distinguished four distinct morphological forms of leprosy bacilli as follows: normal bacilli are rod shaped, sometimes with pointed ends; they are of variable length and stain uniformly by Ziehl's method. Secondly, bacilli undergoing evolution are large, occasionally branched and with thickened ends and they do not always stain uniformly. They are found especially in macules and tuberculoid infiltrations and nerve cases which are showing resistance and tending to cure. They are not found in progressive lepromatous cases. They are also present in inoculated animals showing resistance to infection. Thirdly, bacilli undergoing division are divided into two or three nearly equal lengths by small unstained transverse intervals where they divide by fission; they may show some granulation. They are never found in nerve cases not undergoing evolution and are less frequent in treated than in untreated cases; but they are present in large numbers in globi in active cases of leprosy with rapid multiplication of the organisms. Fourthly, in degenerating lepra bacilli, disintegration takes place by progressive stages with the appearance of lightly staining granules in the rods, followed by gradual loss of staining power and the appearance of chains of granules, which in turn disintegrate to minute dots and then disappear. This last form increases *pari passu* with the clearing up of cutaneous cases under treatment. No proof has yet been furnished of the existence of an ultra-microscopic form. [It may be of interest to recall that the reviewer, in 1917, recorded and illustrated increased granulation of lepra bacilli and their gradual disintegration and disappearance from nodules of the ear, with improvement under treatment by injections of soluble preparations of chaulmoogra oils *Trop. Dis. Bull.* **11** (1918) 407.]—[Abstract from *Trop. Dis. Bull.* **45** (1948) 187.

DE OLIVEIRA CASTRO, G. M. Staining nodules of the leprosy bacillus. Leprosy Review. **18** (1947) 45-9.

The author uses the term "bacilli nodules" or "nodules" for the rounded spore-like thickenings seen in lepra bacilli: an unfortunate term. His method is a modification of that of Cooper, in which the addition of sodium chloride to a solution of carbol-fuchsin produces a precipitate at room temperature, which redissolves on heating. The present writer prefers the

addition of 10 per cent solution of potassium phosphate, KH_2PO_4, 3 cc. of which is added to 100 cc. of carbol-fuchsin, or 5 drops to 10 cc. just before staining. Flood the slide with this stain, steam for five minutes and allow to cool until a cloudy precipitate of the stain appears, and pour off the stain. Without washing, decolorize in 3 cc. HCl in 97 cc. of 96 per cent ethyl alcohol until the dye ceases to flow off. Counter-stain for half to one minute with a dilute solution of 0.1 gm. methylene blue in 1,000 cc. water. Wash and dry. The acid-fast bacilli are stained red and the "nodules" within them stain very dark red or brown, as spherical structures of a larger size than the bacilli; they may be at the ends of the bacilli and usually number 1 to 3 and rarely exceed 4 or 5. They are present in practically all the bacilli. Similar results are obtained by staining tubercle bacilli in sputum.—[Abstract from *Trop. Dis. Bull.* **44** (1947) 1072.]

PUIGGROS, P. J. Una cepa Española del *My. leprae* (Hansen) Lehmann y Neumann. [A Spanish strain of the *M. leprae.*] Fontilles **2** (1948) 38-45.

This report deals, first, with the results of experiments to determine the pathogenicity of the known strains of *M. leprae*, and goes on to describe a new strain cultivated on various media, including red Loewenstein, green Loewenstein, Dorset, Petrof, and Petragnani, to which were added before sowing a drop of Sauton and of vitamins B and C. The organism cultivated has the typical bacillary form of *M. leprae.* It produces granules like those of Much, it is encapsulated, immobile, and quite resistant to acids, alkalis, and alcohol. It grows very slowly, forms bright yellow, confluent colonies, and does not grow on ordinary media. It is pathogenic for the white rat, mouse, guinea pig, and rabbit. It is differentiated from the tubercle bacillus, the pathogens for cold-blooded animals, and the saprophytes by its peculiarities of pathogenicity and by its metabolism.—[From author's summary in English.]

CHAUSSINAND, M. Inoculation de la lèpre aux animaux. [Animal inoculation with leprosy material.] Ann. Inst. Pasteur. **73** (1947) 677-82.

The author summarizes in this paper ten years' experience of inoculations of animals with leprosy material. In the case of white mice, subcutaneous inoculation of material containing very numerous lepra bacilli produced only local lesions and alopecia; but three animals which survived intraperitoneal injections later showed scattered bacilli in the internal organs. Monkeys have also been inoculated by various routes. Intradermal and subcutaneous injections have produced local lesions only after three to five months; these disappeared again before long and left no trace nor was any multiplication of the bacilli found. Lepromatous nodules were implanted in the subcutaneous tissues, with the production of purulent lesions which healed slowly and were of an eliminative nature and not true infective lesions. However, the insertion of a leprous nodule into the peritoneal cavity did produce an infection, with the appearance of cutaneous lesions containing acid-fast bacilli; the tuberculin test was negative, but the Mitsuda was positive. Later the lesions resolved, with progressive disappearance of the Hansen-like bacilli from the tissues, and the Mitsuda reaction became negative. Inoculation of lepromatous emulsions into guinea pigs by various routes gave no results, as the bacilli were eliminated more or less quickly. On the other hand, the insertion of a leprosy nodule under the skin of the nape of the neck produced a local infection. The author

concludes that the inoculation of animals with leprous material does not produce infections of a general nature, such as would afford opportunities for testing the value of therapeutic substances used in the treatment of the human disease.—[Abstract from *Trop. Dis. Bull.* **45** (1948) 188.]