

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.

- 6 PESCE, H. Lepra en el Peru precolombiano. [Leprosy in pre-Columbian Peru]. *Rev. brasileira Leprol.* **19** (1951) 227-242.

The reports of historians and philologists, and especially the analysis of the pre-Inca and Inca relics, tend to show the existence in pre-Columbian Peru of several major diseases—such as syphilis, yaws and cutaneous leishmaniosis—distinctly differentiable from leprosy. Similar investigations have not demonstrated the existence of pre-Columbian leprosy in Peru, whereas there are sufficient reasons to support the belief that it was imported from Spain. The investigation of this problem of pre-Columbian leprosy has not, however, exhausted the possibilities. Mummies should be subjected to macroscopic, microscopic and X-ray examination, with attention to the digital bones of the hands and feet; the peripheral nerves, especially the cubital, peroneal and superficial cervical; and the skin, lymph nodes and remains of abdominal viscera.—[From author's summary.]

- 7 [BRAZIL, MINAS GERAIS] Constituições de Congregação de Jesus Flagelado. Fundação em Minas Gerais de la 1ª Congregação de religiosas leprosas para asistencia aos hansenianos internados. [Establishment of the first religious order of leprosy women for aid to interned patients.] *Arq. mineiros Leprol.* **10** (1950) 189-200.

In the Santa Isabel colony there has been founded the Order of the Servants of Jesus Scourged. It is the first to be organized for the care of inmates by religious women also with the disease. The rules and aims of this interesting and original order are transcribed.—[From abstract in *Fontilles* **2** (1951) 644.]

- 7 DAVIES, P. Fight against leprosy. *Calcutta Med. J.* **48** (1951) 319-320.

This is a short account of the leprosy problem in the British Colonies, and the way in which it is being tackled by the Home Government and Belra in collaboration with the colonial governments and missions. It is estimated that there are more than 400,000 leprosy cases in the colonies of East and Central Africa alone. For preventive and curative work nearly £700,000 has been spent since 1943, under the Colonial Development and Welfare Acts. —DHARMENDRA

- 7 INNES, J. R. Leprosy in Northern Rhodesia. *East African Med. J.* **28** - (1951) 21-28.

In 1950 the author conducted a conspectus of the leprosy situation in Northern Rhodesia, which has a population of 1,600,000 with the low average density of 5.5 per sq. mile. By random sampling a total of 27,915 persons were examined in 23 centers and a leprosy prevalence of 12.6 p.m. emerged, the estimated total being 20,000 cases. There was a much higher prevalence in places of high average atmospheric humidity than in

the drier areas. Lepromatous cases were 20.4%; and 60.7% were found to live in home contact with a total of 896 children. There are 8 leprosaria, with some 1,600 inpatients. There is need to improve these institutions, and to establish at least 1 new one of 1,000 patient capacity; also, among other things, to recruit a territorial leprologist to guide the antileprosy campaign.

—AUTHOR'S ABSTRACT

7 INNES, J. R. Leprosy in Nyasaland, *East African Med. J.* **28** (1951) 168-173.

In 1950 a leprosy conspectus was conducted in Nyasaland, a small country with a population of 2,000,000 with an average density of 55.51 per sq. mile. By examination of samples of the population totalling 31,737 persons in 32 centers, the leprosy rate emerged as 14.0, with an estimated total of 30,000. Again the higher atmospheric humidities seemed to be associated with the higher rates. Lepromatous cases were 22%; and 82% of cases lived in house contact with an average of four children per case. There are 6 leprosaria, with a total capacity of 1,000 inpatients. Their improvement and the foundation of at least 1 new one, as well as greater use of the modern drugs, were advised.

—AUTHOR'S ABSTRACT

7 INNES, J. R. A leprosy survey in Zanzibar and Pemba. *Lep. Rev.* **23** (1952) 67-72.

In 1951 a leprosy survey was made in the islands of Zanzibar and Pemba off the coast of East Africa. The former comprises 640 sq. miles with a population of 150,000, the latter 380 sq. miles with 114,000 people. In Zanzibar, samples of the population totalling 10,748 were examined and the leprosy rate emerged as 3.9 p.m., the estimated total being 600. In Pemba 21,903 persons were examined, the leprosy rate was 5.5 p.m., and the estimated total 600. Lepromatous cases were 18.0%; 82% of the cases found were living in house contact with a total of 252 children. Strong evidence was found for the past importation of leprosy by the historic slave trade, and in modern times by the seasonal importation of paid laborers for the clove and other crops. There are 2 leprosaria, with about 50 inpatients. In such small islands, with only a mild leprosy problem, an attempt at complete control should be successful. Recommendations are: recruitment of 2 Belra leprosy workers, improvement of the leprosaria, the use of the newer drugs, and screening of imported laborers to exclude the inward trickle of cases from the African mainland.

—AUTHOR'S ABSTRACT

7 INNES, J. R. Annual Report, Interterritorial leprologist, East African High Commission (1951). Printed by the Government Printer, Nairobi.

The author describes the task confronting him when he was assigned to the vast territories of East Africa in 1947, and how it has developed. In wide-ranging surveys, which took a great deal of his time, by the end of 1951 a grand total of nearly one-half million people had been examined in a considerable number of places. The prevalence rates emerging are: Uganda, 17.8 p.m.; Kenya, 10.2; Tanganyika, 18.1; Northern Rhodesia, 12.6; Nyasaland, 14.0; Zanzibar, 3.9; and Pemba, 5.5. In East Africa proper (Uganda, Kenya, Tanganyika, Zanzibar and Pemba), the estimated total of existing cases is 216,000, with only 7,000 under care in the 18 leprosaria. Only a few of these institutions are adequately staffed, and

most of them are handicapped by lack of financial support. The work of the devoted band of scattered workers in the difficult circumstances is beyond praise. Discussing the economic and social roots of leprosy, the economic deadweight of 216,000 cases of untreated leprosy is pointed out, and that it would well repay the territories to undertake their care. For the complete control of the disease it is of profound importance that there should be a partnership of governments, people, missions, leprosy societies and the like. There is an important stimulating effect in the possession of an effective medicine, but this should be used carefully and with full supervision, and not broadcast; and this means the use of a sufficient number of responsible leprosy workers, and good leprosaria. Amongst the special points of interest are: the increased use of the sulfones, 5,000-6,000 cases having been brought under this treatment with an arrest rate varying between 50% and 80% and a minimum of toxic and other reactions; the spontaneous generation of the wish to have leprosy control schemes, on the part of certain of the East African tribes; the appointment of a territorial leprologist by Uganda; the beginning of construction of a new leprosarium in Kenya, at Itesio in a region of high prevalence; the initiation of a leprosy research station attached to one of the larger leprosaria, supported by cooperative agreement between BELRA and the East Africa High Commission, which it is hoped will enter on the stage of practical implementation in 1952.

—AUTHOR'S ABSTRACT

- WHEATE, H. W. Leprosy in Teso district, Uganda. *East African Med. J.* **28** (1951) 420-422.

In surveys in 5 subcounties of the Teso district of Uganda, out of a population at risk of 5,800, the author examined 3,643 persons and found a prevalence of 47.5 p.m. This high incidence is connected by the author with the climatic factor of high constant humidity, as well as high density of population, and he refers to similar findings by Innes in all the East African territories. In the 173 cases found the child rate was 22.5%. Regarding the clinical type, 86% were tuberculoid and only 6.4% lepromatous. For the whole county of Kumi, of which the 5 subcounties were thus sampled, the number of cases is estimated as 3,000 in a total population of 70,000.

—J. ROSS INNES

- CHANDY, P. J. Leprosy relief in the U. P. *J. Indian Med. Assoc.* **20** (1951) 322-324.

The author outlines a scheme of leprosy control for Uttar Pradesh, formerly known as the United Provinces. Instead of developing further the central leprosy institutions, he advocates development or creation of more peripheral district centers in areas where leprosy is a major problem, together with several subsidiary centers for groups of outlying villages. The organization and control of these subsidiary centers are briefly described.

—N. MUKHERJEE

- HERRERA, G. Distribución geográfica de la lepra en la República Dominicana. Proporciones e índices. [Geographical distribution of leprosy in the Dominican Republic; percentages and indices.] *Rev. Méd. dominicana* **5** (1950) 268-276.

In the period 1922 to 1942 there were admitted to the Sanatorio-Colonia Ntra. Sra. de las Mercedes, the only leprosarium in the Dominican Republic, a total of 212 patients—142 males and 70 females; 59 colored,

37 white, and 116 mestizos. Of this total 168 cases (79%) came from the southern region, 147 of them Dominicans and 21 foreigners from the Antilles (117 males, 51 females), and 44 from the northern region, all Dominicans (25 males, 19 females). The central region is nonendemic. A survey carried out in 1942 revealed the existence of 112 cases in addition to an equal number then in the leprosarium, giving a total prevalence index of 0.12. Of these new cases 91 were in the southern region and 21 in the northern one. At the end of 1950 the total of known cases was 288, of which 188 were segregated; 231 (80%) were from the southern region (150 males, 81 females) and 57 from the northern region (32 males, 25 females). The disease predominates among the mestizos, which is the preponderant racial group. Of the total known cases, the distribution by percentages was as follows: southern region, colored, 15.3%; white, 9.7%; mestizos, 55.2%; northern region, colored, 0.7%; white, 2.8%; mestizos, 16.3%. These percentages are in proportion with the population of the republic in 1938, but in relation with the movement of hospitalized patients in the past there were decreases among the pure racial types. Leprosy is more frequent in the coastal areas, the two principal foci being San Pedro de Macoris and Ciudad Trujillo. For the country as a whole, there is 1 case per sq. km., and 1 for every 7,000 inhabitants, a prevalence of 0.14 p.m., with 0.22 in the south and 0.05 in the north. The incidence for 1949 was 0.02. Other prevalence indexes are: 0.03 for children under 15 years; and 0.16 for males and 0.09 for females. The census of cases has been made through the medical officer personnel of the health units and the social welfare administration, backed by a law providing for obligatory notification of all affected persons and for their segregation. This method is the most suitable one for countries with limited economic resources and small numbers of cases and of inhabitants, and also for one with a population with mentality and social conditions like those in Dominica. Recently, there has been effective propaganda in the parole of patients treated with sulfones, thus facilitating the enumeration of cases and placing in contact with doctors patients who previously had remained hidden.

—AUTHOR'S ABSTRACT

FLOCH, H. and DESTOMBES, P. La lépre en Guyane française. Notes épidémiologiques. [Leprosy in the French Guiana; epidemiological notes.] *Rev. colon. Méd. et Chir.* **22** (1950) 184-188.

The results of the active case-finding program shows that leprosy in French Guiana is in a period of activity. The general incidence is 4.3%, and children are a prominent element, 10% of the cases detected being in the 0 to 5 years age group and 29% from 6 to 10 years. The benign forms, tuberculoid and indeterminate, are very frequent, constituting at least two-thirds of the cases among the creole population. This fact can be interpreted as a proof of a partial immunity of this population, which has lived for a long time in an endemic milieu, this condition being evidenced by the Mitsuda reaction. Leprosy has seriously ravaged the penal element, among which at the time of abolition the incidence (6%) was higher than in the free population. From the leprosy point of view, the penal institutions have afforded an "experiment" of great significance with respect to the infectivity of the disease in adult life, and this experiment has given positive results. Europeans from regions where the disease is practically unknown developed in a very large majority the serious, progres-

sive and infectious lepromatous type. Familial and school infection is a certainty.

—AUTHOR'S ABSTRACT

- 7 DE MELO, A. V. Mortalidade por lepra na cidade de Recife. [Mortality from leprosy in Recife.] *Arq. mineiros Leprol.* **10** (1950) 217-221.

During a period of 30 years (1916-1945) the average mortality from leprosy in Recife was 4.62 per 100,000 inhabitants. No tendency towards reduction has been observed. The incidence may even have been greater, for not all deaths from leprosy have been notified.—[Abstract from *Excerpta Med.* **6** (1952) 117.]

- 7 DINIZ, O. and DA CUNHA, A. R. Ainda a situação do problema de lepra no Triângulo Mineiro. [Review of the problem of leprosy in the Triângulo Mineiro.] *Arq. mineiros Leprol.* **10** (1950) 222-232.

From 1947 to 1951 the incidence increased from 2.55 to 2.64 per 1,000 inhabitants. The ratio of lepromatous to tuberculoid is 3:1. The ratio of men to women is 2:1. Laborers, beggars and household servants represent 92% of the cases.—[Abstract from *Excerpta Med.* **6** (1952) 117.]

- 7 FERNÁNDEZ, J. M. M. and CARBONI, E. Bases de la moderna profilaxis de la lepra. Aislamiento, premunición y tratamiento preventivo. [The bases of modern leprosy prophylaxis. Isolation, precautionary measures and preventive treatment.] *Arch. argentinos Dermat.* **2** (1952) 167-179.

The authors suggest readjustments of the campaign against leprosy in the light of new acquisitions of knowledge of the disease. The preventive campaign should be based on selective and temporary isolation of bacteriologically positive cases, on intensive treatment of known cases and "preventive" treatment of suspects, and on control and protection of contacts. Each of these premises is analyzed, and the results of their personal experience with respect to preventive sulfone treatment are given. A program for investigating the precise value of BCG is proposed, although its use is recommended on the grounds of experience in tuberculosis and its harmlessness.—[From authors' summary, supplied by G. Basombrio.]

- 7 MONTERO RODRÍGUEZ, A. La lepra infantil y su profilaxis. [Childhood leprosy and its prevention.] *Rev. española Pediat.* **6** (1950) 70-77.

A survey of several articles dealing with the subject, particularly the Brazilian literature, has led the author to the conclusion that the preventorium is the most effective weapon in the fight against leprosy in childhood. Father Damien is hailed as the originator of this fine work. The matter of classification of the disease in childhood is considered highly important, and the author believes that this can be accomplished in all cases by means of the Mitsuda reaction, which is inaccurately analyzed. Apart from classification, importance is also given to early diagnosis, which can be done by means of the histamin test, and—according to the author—with the serum reactions of Wassermann and Rubino, and the bacteriological examination of the blood and mucus. —F. CONTRERAS

- X FLOCH, H. Aspects sociaux du problème de la lèpre. [Social aspects of the leprosy problem.] *Monde Médical* **61** (1951) 144-150.

The question of social assistance to leprosy patients and their families is a difficult one. In Brazil the principal social effort has been

directed, as yet, toward the preventoria with the aim of safeguarding the contacts, especially the children, and to lead them to social rehabilitation. However, there is a further move in Brazil to provide for the complete social assistance of the patients and their families. Generally speaking, when a patient is isolated his family should be legally and sufficiently supported financially, and the rehabilitation of the patients should be provided for. In Guiana a center for vocational re-education could be attached to the Acarouwany departmental sanatorium, but there is a considerable obstacle in the cost of such a program. It seems that the Sécurité Sociale should finance and control this project.

—AUTHOR'S ABSTRACT

WADE, H. W. The persistent problem of latent leprosy. *Rev. argentina Dermatosif.* **35** (1951) 105-111.

The fact that there is commonly a long period of latency in leprosy infection, and the probability that many people are infected but never develop the disease, have caused much search for the locus of the latent infection. The bacillus is so bland that it apparently does not cause perceptible focal lesions, and its presence cannot be determined by immunological means. The long-held idea that the site of entry and of the first lesion is the nasal mucosa has not been substantiated. It remains possible that the bacillus may often enter by that route, but that it commonly lodges there must be discounted because of the many negative findings in contacts. There is more evidence in favor of the idea that the superficial lymph nodes may be the common site of the latent condition, whatever the portal of entry. The portal may often, if not usually, be the skin, the bacillus lying dormant there or being transported to the lymph nodes of drainage. The difficulties of determining latent infection in such tissues are great, and the matter has been correspondingly neglected. There should be a thorough investigation by a triple approach—nasal mucosa, lymph nodes and skin, with emphasis on the last—by multiple scrapings, puncture of multiple lymph nodes, and if possible extirpation of some for histological examination.—[From author's summary supplied by G. Basmbrio.]

MAIZ BERMEJO, S. Sobre el diagnóstico de la lepra (con especial atención al diagnóstico precoz). [On the diagnosis of leprosy, with special reference to early diagnosis.] *Medicamenta* (Madrid) **9** (1951) 159-164.

There are recapitulated in this article the different factors which may help to facilitate diagnosis, with emphasis on the data useful for the early diagnosis of the initial manifestations. First it deals with the clinical diagnosis, with descriptions of the various general manifestations which in some cases precede the cutaneous and nervous manifestations, which are then discussed in continuity in the clinical study. Then are taken up all the useful laboratory diagnostic tests, the biological reactions, and lastly the pathological anatomy. Without containing anything new, this article is useful for bringing out the present state of a problem as interesting as early diagnosis in a periodical of wide circulation among the medical men of Spain.

—F. CONTRERAS

SAGHER, F., KOCSARD, E. and LIBAN, E. Diagnosis of leprosy. *J. American Med. Assoc.* **149** (1952) 1329-1330 (Foreign letters; Israel).

The long incubation period of leprosy is the greatest obstacle in its

exact diagnosis. Through the experimental studies of these authors it has now become possible to answer the question of whether there is an acute infection. They have found after intracutaneous injections of tuberculin [see *THE JOURNAL* 20 (1952) 341-346], leishmanin, milk, and peptone in leprosy patients there occurs a granulomatous reaction which is indistinguishable histologically from lepromatous leprosy. Inoculations of BCG vaccine produced clinically typical lesions, but their histology was indistinguishable from that of true lepromas. It seems, therefore, that lepromatous leprosy produces only its own histopathological response, regardless of the nature of the excitant. Early cases may be detected even in the incubation period by performance of this test, and it may be of importance for criteria of cure since the response was still present after disappearance of clinical signs and bacilli. So far, no other known disease reacts in this way.—[Condensation.]

DARMAR, H. and BARUH, S. Un cas de lèpre nerveuse simulant la syringomyelie. Diagnostique par la méthode biologique. [Case of leprosy simulating syringomyelia; diagnosis by the biological method.] *Istanbul Contrib. Clin. Sci.* 1 (1951) 478-497.

The differential diagnosis between pure nerve leprosy without cutaneous manifestations and syringomyelia can be most difficult. Mutilations of the phalanges and dissociated disorders of sensibility are common to both maladies. In syringomyelia, thermanesthesia and analgesia are due to involvement of the posterior horns of the spinal cord, whereas in nerve leprosy the lesion starts in the peripheral endings of the cutaneous nerves and spares deep sensibility; besides, the sense of touch, which is evenly distributed, is rarely lost completely. The case described is very similar to syringomyelia. From the clinical point of view the spreading of the disorders of sensibility to the lower limbs speaks in favor of nerve leprosy, because in syringomyelia the lower extremities are usually not involved; but in a very advanced case the syringomyelitic process would extend to the white matter of the lateral funiculi and provoke signs of lesions of the pyramidal paths in the lower limbs, which were absent in this patient. Where a correct diagnosis is difficult to reach through neurological criteria alone, the histamin test is of value. The triple response of Lewis to histamin consists of local vasodilation, a wheal, and a hyperemic flare produced through an axonic pseudoreflex. The stimulus follows the sensory nerve fiber up to the point of departure of fibrils which act as vasodilatory fibers and induce relaxation in the walls of the skin arterioles. In leprosy this axonic pseudoreflex is lost, whereas in syringomyelia—in which the trophic center of the peripheral sensory fiber of the spinal root ganglion is intact—the triple response will be retained. In the case reported the flare was absent in all anesthetic regions but present where the cutaneous sensibility was preserved, establishing the diagnosis of leprosy. Postmortem histologic examination showed that the spinal cord was intact, whereas severe changes were found in the peripheral nerves.—[From the authors' summary in English.]

VILANOVA, X. and ESTELLER, J. Comentarios a una sistemática de la lepra que pueden servir de base para una clasificación utilitaria de dicha enfermedad. [Some comments on leprosy that may serve to establish a useful classification of the disease.] *Clin. Méd.* 14 (1950) 420-427.

Lepromatous leprosy (L) is considered as a retention disease which begins on a histiocytic-fibroblast basis, as occurs in xanthoma, a symbiosis between the bacilli and the reticuloendothelial tissue, i.e., a disease of storage, a thesaurismosis, although produced by a living agent, which is not exceptional in pathology. The initial lesions have the appearance of a true histiocytoma (Hansen's bacilli and lipids). For these reasons the suffix "oma" is appropriate. Reactive leprosy (R) is largely comparable to tuberculoid leprosy, and the following 4 subvarieties are given: maculoanesthetic (Rm); polyneuritic (Rp); tuberculoid (major: Rt and minor: rt), restricted to cases with clinical pictures which recall skin tuberculosis; and fibrosclerosing (Rf), a description of the clinical and histological basis of this last subvariety being given. In reactive leprosy the degree of intensity of the disease is recorded by the figures 1, 2, 3. For instance, a case with prevalence of maculoanesthetic disturbances of severe degree is labelled Rm2; one of initial polyneuritic form, Rp1, etc. Between these two extreme forms, lepromatous and reactive, the authors place the cases whose symptomatology does not permit inclusion in either, these constituting the "doubtful or indeterminate leprosy" (D), and also those with clinical and pathological features intermediate between the extreme types, which are given the provisional name "intermediate leprosy" (LR). Finally, the authors suggest replacing the name "lepra reaction" (which may lead to confusion with the new term "reactive") by "leprosy outbreak" (*brote leproso*), which is adequate and follows closely the customary rules of nomenclature of general pathology.—[From abstract in *Excerpta Med.* 6 (1952) 251.]

PEREIRA, A. C. Estudo da reação leprótica; sua incidência em doentes de dispensário. [Study of lepra reaction; its incidence in dispensary patients.] *Arq. mineiros Leprol.* 10 (1950) 151-157.

This is a study of lepra reaction in 402 dispensary patients during 2 years of observation, taking into account the type of the disease. The present concept of lepra reaction and its predisposing factors is considered, including sulfone therapy which may produce an allergic state or a reactivation which precipitates the reaction.—[From abstract in *Fontilles* 2 (1951) 644.]

FIOL, H. and JONQUIERES, E. D. L. Lepra de Lucio. Un primer caso registrado en la Argentina. [Lucio leprosy; first case reported in Argentina.] *Rev. argentina Dermatosif.* 35 (1951) 235-245.

The case presented is classified as of the Lucio variety of leprosy because of diffuse, generalized infiltration without formation of nodules or tubercles at any time during its evolution, and also madarosis, almost total alopecia involving the scalp to a certain extent, alterations of the nasal mucosa with destruction of the cartilagenous septum, and especially the occurrence of a peculiar acute phenomenon consisting of erythematopurpuric spots with necrosis and ulceration (Lucio phenomenon) due to vascular changes. The main cause of this necrosing vascularitis is unknown, although some workers believe that it is due to mixed sensitization to *M. leprae* and other organisms; others attribute it to nutritional and racial factors; and, recently, Winter has suggested that it may be due to a distinct, necrosing strain of the mycobacterium. It is difficult to say what relation there may be between the bullous-ulcerative lazarine phenomenon of the neural form and the purpuric necrosing Lucio phenom-

enon, although lately there has been a tendency to regard them as two different things. The authors point out the absence of amyotrophy and contractures in this form of leprosy, and the fact that the diffuse, generalized infiltration is usually inapparent, revealed only by the alopecia and dryness and atrophy of the skin.—[From authors' summary, supplied by G. Basombrio.]

- MARIANO, J. Evolução de um caso de lepra tuberculóide para forma in-característica e posteriormente para forma lepromatosa. [Evolution of a case of tuberculoid leprosy to incharacteristic and later on to the lepromatous form.] *Arq. mineiros Leprol.* **10** (1950) 21-26.

The author describes the case of a female patient seen in 1943 who, besides a syphilitic eruption, had lesions of leprosy which were detected only after the recession of the syphilitic manifestations. Although the form was tuberculoid, she did not improve but gradually, probably because of suspension of the defense potential, the disease transformed to the in-characteristic form and, owing to absolute absence of resistance, she finally ended as lepromatous.—[From abstract in *Fontilles* **2** (1951) 643.]

- FARIÑAS, P. Mutación de un caso de lepra indeterminada lepromino negativa a tuberculoide lepromino positiva bajo tratamiento con diaminodifenilsulfona. Pseudo exacerbación de S. Lima y R. de Souza. [Mutation of a lepromin-negative case of indeterminate leprosy to lepromin-positive tuberculoid under sulfone treatment. Pseudo-exacerbation of Souza Lima and Rath de Souza.] *Bol. Soc. cubana Dermat. y Sif.* **8** (1951) 47-51.

The author describes a case of indeterminate leprosy treated for 5 months with a sulfone derivative, in which he observed a "pseudoexacerbation" ending in complete mutation to tuberculoid, with histological confirmation of the clinical aspect. —F. R. TÍANT

- GHOSH, K. K., DHARMENDRA and DEY, N. C. Nose and throat lesions in cases of leprosy of the lepromatous type. *Indian Med. Gaz.* **86** (1951) 400-403.

A clinical and bacteriological study has been made of nose and throat lesions in 80 outpatient cases of lepromatous leprosy, the duration of the disease varying from 2 to 12 years, the degrees of advancement being: L1, 2; L2, 59; L3, 19. Lesions were most frequent and marked in the nose, least in the larynx. Serious involvement of the larynx appears to be much less common in India than in some other countries. The common pathological changes in the nose consist of infiltration, nodulation, atrophy, ulceration and perforation of the septum, frequently with destruction of the cartilaginous portion in advanced cases. There may be adhesion between the lateral wall and the septum, especially at the level of the inferior turbinate. The changes in the pharynx and larynx are of the same nature, but usually less marked.—[From authors' summary, supplied by N. Mukherjee.]

- RODRÍGUEZ MORENO, D. Hanseniosis de pulmón. [Leprosy of the lung.] *Acta Clin. (Sevilla)* (1950) 972-981.

A case is reported of a patient with typical leprosy who developed lung lesions during the course of the disease. Hansen's bacilli were pres-

ent in the nasal smear. The sputum contained neither Hansen's nor Koch's bacilli. There was paralysis of the left vocal cord. The skin lesions improved and the lung shadows faded (radiographically) while the patient was under treatment with chaulmoogra oil. The author therefore states categorically that the lung lesions were due to leprosy.—[Abstract from *Excerpta Med.* 6 (1952) 250.]

TZANCK, A. and DAGUET, G. Brève note sur l'expérience de la sulfonothérapie de la lèpre au pavillon de Malte de l'Hôpital Saint-Louis. [A brief note on treatment of leprosy with sulfones at the above hospital.] *Arq. mineiros Leprol.* 10 (1950) 106-107.

Leprosy was treated with sulphetrone (cimedone) in progressive doses of 1-3 gm. a week, to which 0.10 gm. of iron oxalate were added per 0.50 gm. of cimedone. Oral was preferred to intravenous administration. Intramuscular injections of cimedone and the parent sulfone in a retarding solution of oil were also attempted. With this latter product a concentration was obtained in the blood of 2-3 mgm/l., which persisted for 2-3 weeks; the injections could be reduced to 2 per month.—[Abstract from *Excerpta Med.* 5 (1951) 502.]

ROY, A. T. Diaminodiphenylsulphone (DDS) in leprosy; its effect on hemoglobin, weight, bacteriological index and reaction. *Indian Med. Gaz.* 86 (1951) 373-375.

The author studied the indicated effects of DDS while treating 98 lepromatous cases at Purulia. The period of treatment varied from 6 to 24 months. DDS was given orally, starting with 50 mgm. and going up to 300 mgm. Hematinics were given from the start, but no special diet. During the initial stage of treatment the percentage of hemoglobin was reduced in 33 patients, remained stationary in 56, and increased in 8; in all cases hemoglobin increased later on. There was no effect on weight. The bacteriological index (average of 5 smears) improved in varying degrees in 74 cases, remained stationary in 14, and became worse in 10. Reactions, varying in frequency from 1 to 13, were noted in 71 patients.

—N. MUKHERJEE

FLOCH H., LECUILLER, A. and DESTOMBES, P. Sur la sulfonémie après injections de suspensions huileuses de sulfone-mère. [Sulfonemia following injection of oily suspensions of parent sulfone.] *Bull. Soc. Path. exot.* 44 (1951) 401-405.

This article is a reply to a comment by J. Schneider about a sulfonemia of 25 mgm. observed in a patient treated with an oily suspension of DDS. After commenting that this level is exceptional, the authors show that it can be explained by irregular absorption of the DDS administered in an oily suspension. This explanation is confirmed by, among other things, the fact that a level of 25 mgm/% indicates a larger amount of the drug in the circulation than that given in the preceding injection. (An analogous case is reported in an article by J. Schneider.) In rejecting the causes of error postulated by Schneider in his criticism (local anesthesia or aromatic amines), the authors refer to the opinion of Sister Hilary Ross, which is similar to theirs.

—AUTHORS' ABSTRACT

GATÉ, J. Essais de traitement de la lèpre par un dérivé hydrochaulmoogroylé de la D.D.S. Ses avantages au double point de vue de la

tolérance et de l'activité lépricide. [Trial of leprosy treatment with a chaulmoogra derivative of DDS; its double advantages with respect to tolerance and antileprosy activity.] *Bull. Acad. Nat. Méd.* **136** (1952) 8-10.

This is a preliminary report of the treatment of leprosy with bi-dihydro-chaulmoogroyl-4,4'-diamino-diphenyl-sulfone, a combination of chaulmoogra oil and DDS. Using a 5% suspension in series of 20 semi-weekly intramuscular injections, 15 days intervening between each series, 17 patients from 10 to 73 years of age were treated with clinical improvement in all types of the disease. Leproids were always favorably influenced early, and lepromas disappeared rapidly, including those of an old woman whose lesions had not responded well to sulfones given by mouth and who tolerated DDS badly. Other noteworthy cases are mentioned. In nerve lesions the alleviation of pain, diminution of hypertrophy of the nerve trunks, and arrest of atrophy occurred rapidly. Histological results are encouraging: diminution of the bacilli, which often became granular, and a lymphocytic reaction and modification of infiltration. Local and general tolerance were excellent, with no contraindications because of age, general condition, or coexisting disease.—[From *J. American Med. Assoc.* **149** (1952) 80, Foreign letters, Paris, supplied by F. A. Johansen.]

FARIÑAS, P. El tratamiento de la neuritis dolorosa hanseniana con tiosemicarbazona (TB1). [Treatment of painful leprosy neuritis with thiosemicarbazone (TB1).] *Bol. Soc. cubana Derm. y Sif.* **8** (1951) 164-172.

The author reports 7 cases of painful neuritis in leprosy patients (4 lepromatous, 2 tuberculoid and 1 indeterminate), all of them successfully treated with TB-1 orally. The daily dose varied from 50 to 300 mgm., always gradually raised from the low to the high dosage as the pain made it necessary. —F. R. TIAN

HERRERA, G. El conteben en el tratamiento de la lepra. [Conteben in the treatment of leprosy.] Paper presented at the III Conferencia Panamericana de la Leprologia, Buenos Aires, December 1951.

Twelve patients (7 lepromatous and 5 reactional tuberculoid), all bacteriologically positive in the nose, were treated with conteben (thiosemicarbazone) given orally for 9 to 12 months. Starting with 12.5 mgm. a day, the maximum dose reached was 400 mgm.; the adults received in total approximately 90 gm., or a daily average of 250 mgm. counting the days of intentional interruption observed regularly every 2 months. With these doses the most important toxic reaction was hemolysis, but in no case did the hemoglobin level or the erythrocyte or leucocyte counts fall below normal limits. Among the secondary side effects, cutaneous reactions and gastrointestinal intolerance were the most frequent, but these were overcome by suspending the treatment for 2 to 4 days. With respect to the degree of infiltration of the skin lesions, 41.5% of the patients treated for 12 months were totally improved. There was no negativization of the nasal exudate. Much more prolonged experimentation is needed to determine the extent of the bactericidal effects of this drug, and the place which it should be given among antileprosy medicaments. —H. W. W.

REVIRIEGO, A. J. and SUAREZ, C. V. Tratamiento de la lepra con la tiosemicarbazona (TB1). [Treatment of leprosy with thiosemicarbazone (TB1).] *Prensa Med. Argentina* **39** (1952) 1187-1191.

Of the 20 patients treated, 18 were lepromatous and 2 indeterminate with lepra reaction; 6 had received no antileprosy treatment, while the rest had had chaulmoogra or sulfones but most of them had become stationary. Conteben was given, 12 mgm. daily for the first week, 24 mgm. for the second week, 100 mgm. for the third week, gradually increasing up to 200 mgm. daily (in 4 doses) by the fifth or sixth week; time of treatment, 12 to 18 months. Tolerance was generally good, with only some early gastric disturbance easily overcome by alkalies. No noteworthy disturbance in the blood picture was seen. One patient with hepatitis dropped out. Clinical improvement occurred in 80%—marked in 50%—the effects observed as early as 6 months; 3 patients remained stationary, and 1 patient became worse—these 4 being the ones receiving least treatment. With the clinical improvement lepra reaction either disappeared or decreased in intensity (3 cases). Nine cases became bacteriologically negative, and in the others the numbers of bacilli decreased. One patient showed a change in the reaction to lepromin; after taking 1,500 tablets of the drug, with both clinical and bacteriological clearance, the reactivity changed from negative to 2+ positive. This drug is considered effective in leprosy.—[Abstract supplied by G. Basombrio.]

SAMPAIO, S., DE SOUZA LIMA, L. and NAHAS, L. Corticotropin (ACTH) in the treatment of lepra reaction. *Arch. Derm. & Syph.* **65** (1952) 617-619.

Six patients with lepromatous leprosy who had had recurrent attacks of lepra reaction while receiving sulfone therapy were treated with corticotropin for periods varying from 4 to 34 days. All of them showed improvement in their general condition during the treatment. In one case there was pronounced and immediate relief of the joint pains and neuritis, with some improvement in the cutaneous lesions. In the other cases no changes in the skin lesions were noted. The hormone may be helpful in lepra reaction. The use of large doses given over a longer period of time, together with sulfone therapy, should be investigated.—[From the authors' summary, supplied by F. A. Johansen.]

RANADE, S. N. and GOKHALE, B. B. Cepharanthin in leprosy. *J. Indian Med. Assoc.* **21** (1951) 38.

The authors report on the beneficial effect of cepharanthin in 5 lepromatous cases treated for 6 months. The dose used was 0.1 mgm. by mouth every day, and intramuscular injection of 0.1 mgm. twice a week. All showed clinical improvement, but no bacteriological improvement. Appetite was greatly increased and no toxic effects were noticed.

—DHARMENDRA

GARCÍA PÉREZ, A. Proteínas séricas en lepra. I. Resultados de la reacción del cadmio en los enfermos de lepra. [Serum proteins in leprosy. I. Results of the cadmium test.] *Actas Dermo-Sif.* **43** (1951-52) 227-234.

Based on the idea that in leprosy—with its chronic and slow evolution and the great participation of the reticuloendothelial system—there should be alterations in the serum proteins, a study was undertaken of which

this is the first report, giving the results obtained with the cadmium test of Wunderly and Wuhrmann (1945) in 100 patients. In total, there were practically the same percentages of positives and negatives. In tuberculoïd patients there was a marked predominance of negative results; all of the quiescent cases were negative, and in the reactional cases only 27.7% were positive. In the lepromatous cases generally the findings were fairly balanced, with a slight predominance of positives. Dividing these patients into 3 groups according to the severity of the lesions, no differences were found. Divided according to the time under specific treatment, however, there was a clear predominance of negatives in the patients treated for over 2 years, which is the reverse to what was found in those treated for less time, and in the cases treated for 3 years the proportion of negatives approached 75%. All patients with lepromatous lepra reaction were positive, and so were all of a small group of untreated patients. These findings indicate a parallelism with the activity of the disease, and therefore reactions of this type may possibly supply data for evaluating the degree of activity in a patient, although the reaction is a nonspecific one and is therefore always subject to a margin of error.—F. CONTRERAS

GALLEGO BURIN, M. Aportación al estudio de la imagen capilar en el leproso. [An approach to the study of the capillary picture in leprosy.] *Rev. Ibero Parasitol.* 10 (1950) 427-464.

In this study the author chose, of the various methods employed, that of Jaensch because of the abundance of typical and atypical forms recognized; it gives a normal capillary picture different from that described by Houssay. Of 25 leprosy patients examined, all gave atypical and mixed capillaroscopic formulas, of interest because there were morphologies previously not recorded. These are given names in accordance with their morphological characteristics. Apart from the predominance of mixed forms, no uniform type of capillary formula was seen. There was observed the *congelada* type, without hemorrhage and without relationship to the clinical form or the duration of the disease. There were also seen alterations in the flooded area as regards the number of capillaries; some of them were very fine, with capillary hypertonia, while others showed local dilatations and flexuosities, especially of the venous branches, which changes are considered spastic-atonie manifestations. Also seen were morphological changes of the *asa de unión* of metabolic nature, which give rise to the liberation of vasoactive substances which may have an inhibitory or stimulating effect and be the cause of the atypical capillary picture. The article has 6 plates and 35 demonstrative figures.

—F. CONTRERAS

USTVEDT, H. J. Observations on the lepromin test. *J. Oslo City Hosp.* 1 (1951) 117-121.

"The intradermal test with lepromin (Mitsuda's reaction) is of considerable interest outside the field of leprosy," it is stated, but this report deals only with the early one to Dharmendra's "defatted" bacillus suspension and not the classical late one. In reading the results erythema and induration were noted, those with induration measuring 5 mm. or more being regarded as positive. On this basis, of 17 tuberculous patients with positive tuberculin reactions, 5 were found positive after 48 hours; in one patient the area had decreased from 5 to 4 mm. at 72 hours, while one

previously only 4 mm. had increased to 5 mm. Of 5 normal but tuberculin-positive individuals, 4 gave positive results, whereas none of 7 normal tuberculin-negative persons was positive. Of 18 adults who had been given BCG, four were reactive to the Pirquet test and 3 of them reacted to lepromin. Of 12 who were Pirquet negative but positive to 100 TU Mantoux, only one proved lepromin positive; the 2 who were negative to both tuberculin tests also failed to react to lepromin. Finally, 11 persons were tested before and after BCG inoculation; in the first test only 1 reacted to lepromin, while in the second one 3 were positive. These results confirm the view that tuberculin reactors are often, but not always, reactive to lepromin. Few individuals who were positive to the Mantoux (100 TU) but negative to the Pirquet test after vaccination with BCG showed definite reactions to lepromin. The late response was not seen in any of the individuals examined for it (number not stated). —H. W. W.

- FLOCH, H. and DESTOMBES, P. La lèpre en Guyane française. Réaction de Mitsuda et de von Pirquet. [Leprosy in French Guiana; the Mitsuda and Von Pirquet reactions.] *Rev. colon. Méd. et Chir.* **22** (1950) 202-206.

The results of the Von Pirquet and Mitsuda tests seem to confirm the opinion of Rogers and Muir that the inhabitants of a highly tuberculous milieu show a certain degree of resistance to leprosy, but that on the contrary Hansen's disease does not provoke any immunity to tuberculosis. It is evident that, as Rabello has said, it would be of interest to employ antigens as analogous as possible for a study of the allergies of tuberculosis and leprosy. The results obtained with killed BCG as the antigen are different from the results of the von Pirquet or intradermal tuberculin reactions. The interpretation of the BCG test when only tuberculosis is concerned is still under discussion; and, *a fortiori*, the situation could only be the same if one should attempt to study the cross immunological relations between leprosy and tuberculosis by analogous techniques.

—AUTHORS' ABSTRACT

- CRUZ BAEZ, R. R. La microreacción Chediak practicada con sangre seca. Su valor en la lepra. [The Chediak microreaction with dry blood; its value in leprosy.] *Rev. Sif. Leprol. y Dermat.* **7** (1951) 191-192.

The Chediak microreaction with dry blood was positive only in 4 of 11 Kahn-positive lepromatous patients.

—F. R. TIAN

- HANKS, J. H. Measurement of the hydrogen transfer capacity of mycobacteria. *J. Bact.* **62** (1951) 521-528.

A metabolic method, based on the reduction of tetrazolium violet, for measuring the hydrogen transfer capacity of murine leprosy bacilli and other biological donor systems is described, and the procedures developed for the study of the matter are summarized. The results obtainable are illustrated by comparing the behavior of *M. leprae murium* and *M. phlei* suspensions in the absence of added substrate. The availability of colorless hydrogen acceptors makes it possible for measurements of hydrogen transfer to acquire a precision and usefulness which is not possible with dye systems as acceptors. In dye systems, an unknown portion of the dye is absorbed, even by dead microorganisms, and the degree of absorption is influenced by the presence of other cations. No data based on the loss of color can be used for precise calculations. Furthermore, a major portion

of the acceptor must be reduced to obtain end-points. This is comparable to conducting respiration studies in the presence of a very rapidly depleted supply of oxygen, i.e., the measurement is limited by the acceptor system rather than by the capacity of the donor system. In the case of colorless acceptors such as tetrazolium compounds a suitable excess of acceptor systems may be added, with the result that the total capacity for reduction can be measured.

—AUTHOR'S ABSTRACT

HANKS, J. H. The biological significance of the hydrogen transfer capacity of murine leprosy bacilli. *J. Bact.* **62** (1951) 529-537.

Comparative studies were made of the effects of physiologic environment and of various types of damage on the hydrogen transfer capacity of *M. leprae murium* and of *M. phlei*. In the case of *M. leprae murium*, the measured hydrogen transfer capacities were compared with infection data, while those of *M. phlei* were compared with plate counts. The hydrogen transfer capacity and the viability of freshly washed suspensions of *M. phlei* were in close agreement. Severe damage to the viability of *M. leprae murium* or *M. phlei* by heat or strong KOH caused a prompt and marked loss in the transfer capacity. Correlation between residual viability and hydrogen transfer capacity following mild damage was observed only when the suspensions were subjected to an additional wash or extraction and when the transfer capacities rather than rates were measured. During aerobic incubation in the absence of substrate, there was an early, rapid decline in the transfer capacity of both microorganisms. Plate counts of *M. phlei* showed that this decline was due to rapid extraction or depletion of endogenous reserves rather than to death of the bacteria. The transfer capacity of incubated suspensions is an index of the relative rather than the actual levels of viability among aliquots of a given suspension. It was concluded tentatively that the measured hydrogen transfer capacity affords significant information concerning the viability and infectiousness of the noncultivated *M. leprae murium*.

—AUTHOR'S ABSTRACT

FENNER, F. and LEACH, R. H. Studies on *Mycobacterium ulcerans*. I. Serological relationship to other mycobacteria. *Australian J. Exper. Biol. & Med. Sci.* **30** (1952) 1-10.

Immune sera were prepared in rabbits against three strains of *M. ulcerans*, against human, bovine, avian and murine types of tubercle bacilli, and against *M. ranæ* and *M. phlei*. By means of complement-fixation tests with absorbed and unabsorbed sera and washed bacilli, the cross relationships were studied, end-points being based on 50% hemolysis. *M. ulcerans* was found antigenically distinct from all the other species examined. The results of cross-absorption of antibody with heat-killed bacteria suggest that this organism is a distinct species, more closely related to the mammalian tubercle bacilli than to other mycobacteria.

—J. H. HANKS

FENNER, F. Studies on *Mycobacterium ulcerans*. II. Cross-reactivity in guinea-pigs sensitized with *Mycobacterium ulcerans* and other mycobacteria. *Australian J. Exper. Biol. & Med. Sci.* **30** (1952) 11-20.

Guinea-pigs were sensitized with heat-killed suspensions of six species of mycobacteria: *M. ulcerans* (4 strains), BCG (1 strain), *M. avium*, *M. paratuberculosis*, *M. ranæ* and *M. phlei*. Skin tests were performed with

dilute heat-killed suspensions of these organisms and also with mammalian and avian PPD. Animals sensitized with *M. ulcerans* exhibited strongest reactions to the homologous suspensions and to mammalian PPD. Cross reactions to the heterologous suspensions and with avian PPD were much weaker. Animals sensitized with the other mycobacteria also exhibited the most marked skin reactions to homologous organisms, with the exception that those sensitized by *M. paratuberculosis* reacted as strongly to *M. ulcerans* as to the homologous suspension. The occurrence of strongly positive tuberculin reactions in guinea-pigs sensitized by *M. ulcerans* suggests that in man, also, *M. ulcerans* might induce tuberculin sensitivity. Taken in conjunction with the preceding paper, the specific status of *M. ulcerans* appears to be established.

—J. H. HANKS

- 6 BARTHOLOMEW, J. W. and MITTWER, T. Effect of ultraviolet irradiation on gram positiveness. *J. Bact.* **63** (1952) 779-783.

The cells of 28 species of gram-positive microorganisms, including *M. lacticola* and *M. smegmatis*, were dried on slides and fixed by heat, osmic acid vapor or formalin. The films were irradiated with a Westinghouse sterilamp (WL-15) at a distance of 12 cm. for varying periods of time prior to being stained. Gram-positiveness was destroyed in all cases in less than 30 hours. The two mycobacteria lost both gram-positiveness and acid-fastness. The authors point out that bacterial films should not be exposed unnecessarily to sunlight or other sources of ultraviolet light, since these factors may influence fairly promptly the success of subsequent gram or acid-fast staining.

—J. H. HANKS

- 6 JAKES, W. E. Sarcoidosis. A review and a proposed etiologic concept. *Arch. Path.* **53** (1952) 558-592.

This is an excellent review of the available literature concerning the etiological and pathologic aspects of sarcoidosis. Fungi, helminths, protozoa, *Treponema pallidum*, virus, brucella, and mycobacteria are the agents that have been implicated, and these are fully discussed. It is stated that Rabello found that lesions of cutaneous and osseous sarcoidosis resembled leprosy, and he suggested this as a possible cause. Harrell and Horne studied the lepromin reaction in sarcoidosis patients and found it to be infrequently and slightly positive, there being no indication that sarcoidosis is atypical tuberculoid leprosy. Pautier stated that even if leprosy can be considered in the etiology of sarcoidosis in Brazil, "it is consistent that the same explanation can hold for European cases, which are common where leprosy does not occur." Cone mentioned a mycobacterium between *M. tuberculosis* and *M. leprae*, or a pleomorphic variant, in his discussion of the etiology of sarcoidosis. It seems implausible that leprosy plays any part in its causation. The geographic distribution and incidence of the two diseases, and the lack of intracellular organisms of appropriate morphologic and staining characteristics in sarcoidosis, help to dismiss leprosy from the etiologic consideration.—F. A. JOHANSEN