

CURRENT LITERATURE

This department carries selected abstracts of articles, published in current medical journals, dealing with leprosy and other mycobacterial diseases. Abstracts are supplied by members of the Editorial Board and Contributing Editors, or are reproduced, with permission, from other abstracting journals.

✓ **Browne, S. G.** Confluent macular lepromatous leprosy. *Leprosy Rev.* **36** (1965) 157-159.

A series of 13 patients is reported, in whom a generalized hypopigmentation was for some time the only evidence of leprosy, until other indubitable manifestations of lepromatous disease appeared. The hypopigmentation resulted from the confluence of macular areas, which regularly spared the inguinal region, a band of skin in the lumbar region, and the axillae. These areas of apparently normal skin usually harbored *M. leprae* and globi, although not in the same concentration as in neighboring hypopigmented skin.—AUTHOR'S SUMMARY.

✓ **Browne, S. G.** Bacterial clearance in patients with lepromatous leprosy not receiving treatment. *Leprosy Rev.* **36** (1965) 161-162.

The progressive disappearance from the skin and nasal mucosa of nonviable *M. leprae* in a patient suffering from lepromatous leprosy but not receiving antileprosy treatment, is recorded. Dapsone was stopped because of severe recurrent psychosis, but clinical and bacteriologic improvement continued as when the patient was receiving antileprosy drugs.—AUTHOR'S SUMMARY

✓ **Lele, R. D., Sainani, G. S. and Sharma, K. D.** Leprosy presenting as rheumatoid arthritis. *J. Assoc. Phys. India* **13** (1965) 275-277.

The authors give short case histories of 5 patients proved to be suffering from leprosy, who, when first seen, showed symptoms and signs suggestive of rheumatoid arthritis, including pain and swelling in the joints, and spindle-shaped fingers. Thirteen such patients have been seen by the authors in the last 4 years. Synovial biopsies have revealed epithelioid and giant cells, but leprosy bacilli have not been seen. [Ab-

stract by F. I. C. Apted. *Trop. Dis. Bull.* **62** (1965) 1006]

✓ **Pruzanski, W.** Lepromatous allergic angiitis. *Israel J. Med. Sci.* **1** (1965) 435-440.

This is a description of 2 patients who presented with skin nodules in which angiitis was the prominent histologic feature. The condition of the first resembled erythema multiforme; the second was diagnosed as erythema nodosum. The underlying leprosy only became apparent some months later. The first case appears to have been somewhat unusual. The second case is explained in that the patient ultimately admitted to having had previous treatment for leprosy. A diagnosis of leprosy should be considered in cases of unexplained angiitis or collagen disease. [Abstract by D. S. Ridley. *Trop. Dis. Bull.* **62** (1965) 1232]

✓ **Rostant, M. and René-Boisneuf, J.** Réflexions à propos de quelques manifestations sérieuses dans la maladie de Hansen. [Serious manifestations in Hansen's disease.] *J. Med. Bordeaux* **142** (1965) 967-970.

Among patients with leprosy in Guadeloupe the authors have noted 10 with hydroceles, 1 with a bilateral hydrarthrosis and 1 with a large effusion into the knee joint. They believe that such manifestations are relatively frequent in leprosy and, although they have been unable to prove a causal connection, they suggest experiments which might be performed by those who have better facilities. [Abstract by F. I. C. Apted. *Trop. Dis. Bull.* **62** (1965) 1006.]

✓ **Rostant, M. and René-Boisneuf, J.** Essai thérapeutique des lésions secondaires chez le lépreux. [Treatment of secondary lesions in leprosy.] *J. Med. Bordeaux* **142** (1965) 991-995.

By secondary lesions in leprosy the authors understand the lesions which follow disturbances of tissue metabolism which *M. leprae* provokes either directly or remotely. The authors have been especially struck by the apparently irreversible fibrocollagenous degeneration of subcutaneous cellular tissue and of muscular fibers. This degeneration, whether occurring early or as a result of nervous or vascular disturbances, induces ischemia, resulting in perforating ulcers and deformities of the limbs. It is important to emphasize that these lesions of fibro-collagenous nature are absolutely independent of the bacterial evolution of the disease itself. The authors describe, in a table, the clinical details and response to treatment of 9 patients, 5 of them with lepromatous, 3 with tuberculoid, and 1 with indeterminate leprosy, given various treatments. All had secondary lesions which were treated in conjunction with sulfones by 2 forms of treatment. There was success in 5 patients and partial success in 2. The therapy used was: (a) enzyme therapy by trypsin-alpha-chymotrypsin—this was given by intramuscular injection, 1 ampule daily for 10 days, in 3 courses altogether, each course followed by 10 days' rest; (b) fibrolytic therapy with synthetic antimalarials such as mepacrine or chloroquine in the form of Collagenan (taken orally), 6 tablets daily for 2 weeks, then 4 tablets daily for 6 weeks, and then 3 daily continuously. An attempt was also made to improve the peripheral circulation by using an intramuscular injection of Medecassol every 2nd day, assisted by vitamins. This is the purified vegetable extract of *Centella asiatica* of Madagascar. [Abstract by J. R. Innes *Trop. Dis. Bull.* 62 (1965) 1124.]

✓ **Kosolapkina, L. I. and Khrykov, G. A.** [Contribution to the problem of pathomorphology of the so-called dimorphous leprosy.] *Voprosi Leprol. i Dermatol.* 19 (1965) 99-104.

The histopathologic picture in 40 biopsies of the skin of leprosy patients with dimorphous eruptions is described. These eruptions are more often associated with the tuberculoid structure and less often

with the undifferentiated one. Histologically dimorphous leprosy is characterized chiefly by prelepromatous structures with *M. leprae*, which are more often localized in histiocytes and epithelioid and vacuolized cells. Polynuclears are always present in the infiltrations. Lipids usually cannot be found in the cells of the infiltrations. In the lesions with indistinct borders, however, scarcely visible light-yellow inclusions may be detected. The authors believe that dimorphous lesions may represent a certain stage of evolution of tuberculoid and undifferentiated lesions, being on the verge of their transformation into lepromatous type.—AUTHORS' ABSTRACT.

✓ **Buu-Hoi, N. P., Le-Khac-Quyen and Xuong, N. D.** Five years' experience in Upper South Vietnam with Dialide, and comparison with DDSO. *Leprosy Rev.* 36 (1965) 105-108.

Insofar as five years' experience in Upper South Vietnam allows conclusions to be drawn, it can be said that Dialide, in adequate dosage, is a highly active therapeutic agent in both lepromatous and tuberculoid leprosy, free from side-effects, and can be used throughout reactional episodes; the "apparent cures" achieved are, however, less stable than those effected with the considerably more toxic DDSO (4,4'-diaminodiphenylsulfoxide) or with the combination Dialide + DDSO. — AUTHORS' SUMMARY.

✓ **Opromolla, D. V. A., de Souza Lima, L. and Caprara, G.** Rifamycin SV in the treatment of lepromatous leprosy. *Leprosy Rev.* 36 (1965) 123-131.

Eleven cases of lepromatous leprosy, in advanced stages of the disease, were treated for periods up to one year with Rifamycin SV. All the cases were submitted to clinical, bacilloscopic and histopathologic examinations. Rifamycin SV shows a remarkable effectiveness in the treatment of leprosy. The very favorable clinical results obtained open interesting perspectives in this field. The histopathologic and bacilloscopic results do not always proceed in a parallel way with the clinical evolution. The absence of toxic effects, and of any

other side effects which could be definitely attributed to the drug, shows that Rifamycin SV is excellently tolerated, except for some local reaction at the injection site after the fourth month of treatment. The incidence of reactive phenomena of the erythema nodosum type is moderate.—AUTHORS' ABSTRACT

Brechet, R. A. Chemoprophylaxis with DDS, mainly in children: A short trial. *Leprosy Rev.* **36** (1965) 143-144.

The dramatic disappearance of leprosy incidence in healthy children living in contact with leprosy patients, the absence of notable toxic effects, the additional benefits, together with the low price of DDS, makes chemoprophylaxis a simple and easy method of prevention of the more susceptible human group. The results encourage a wide use of this method.—AUTHOR'S SUMMARY.

Davison, A. R. Six years follow-up of diphenylthiourea treatment. *Leprosy Rev.* **36** (1965) 145-146.

Diphenylthiourea in its clinical effect and its effect on bacilli is as efficacious as DDS. However, it has to be given at the rate of 4 or more tablets per day as opposed to the one tablet of DDS. Also, tablet for tablet, it is 10 times the price of DDS; so the treatment costs at least 40 times as much. It is therefore not considered a substitute for DDS and given only under certain indications. DPT may be substituted for DDS where the patient has repeated reactions under DDS. It may be substituted for DDS when the patient's response to DDS is slow. It is definitely indicated when the patient shows any type of psychosis under DDS.—AUTHOR'S ABSTRACT.

Sheskin, J. Further observation with thalidomide in lepra reactions. *Leprosy Rev.* **36** (1965) 183-185.

Lepra reactions in 13 cases of lepromatous leprosy responded within 48 hours to treatment with thalidomide. Improvement occurred whether thalidomide was given alone or together with steroids and/or dapsone. A placebo tablet given under similar conditions was ineffective. The dos-

age used was generally 400 mgm. daily given over periods of up to seven months. Toxic effects were numerous, consisting of drowsiness, constipation, dryness of the oral and nasal mucosa, erythema of face and chest, edema localized to one extremity, mild difficulties in erection, excessive appetite, and vesiculo-bullous and eczematous rashes. In most cases these effects were transient, and in no case was it necessary to withdraw the drug because of the side effects. During the 10-month observation period, no pathologic changes were noted on fortnightly examination of urine, peripheral red and white blood cells, and liver function tests.—Author's Summary. [Comments by T. F. Davey, W. H. Jopling and Robert L. Smith, prepared on the invitation of the Editor of *Leprosy Review*, are appended to this paper. These emphasize the emotional aspects involved in experiments with thalidomide, stemming from its well known effect on the fetus early in pregnancy, and call attention to certain apparent defects in the organization of the experiment itself. In general the comments suggest that the number of cases studied is too small, and the evidence too fragmentary to permit firm conclusions on the efficacy of the drug.]

Loginov, V. K. and Braguina, V. S. [New drugs in treatment of leprosy.] *Voprosi Leprol. i Dermatol.* **19** (1965) 121-126.

Data concerning the clinical efficacy of a number of new antileprosy drugs, at present available (Ciba 1906, Ethoxy, Ethionamid, Vadrin) are presented. The authors stress the definite usefulness of Etisul in combination with DDS and other drugs, and the usefulness of Ethionamid as well. They point out the expediency of a study of phthisiologists' experience in the therapy of tuberculosis, and further test of new antituberculosis drugs in leprosy.—AUTHORS' ABSTRACT.

Mali, I. B. Role of thiosemicarbasone in a case of leprosy intolerant to DDS therapy. *J. Nepal Med. Assoc.* **1** (1963) 45-47.

This case report, from Nepal, is of a patient considered to be suffering from tu-

berculoid leprosy who developed dermatitis after only 3 doses of 19 mgm. DDS. Treatment with thiosemicarbazone caused the disappearance of thickening of the supra-orbital nerve, regeneration of sensation and pigmentation, and the growth of hair on a patch on the leg. Eighteen months later all lesions except a nasal ulcer had healed. This ulcer disappeared after treatment for 4 weeks with a low dosage of DDS, 10 mgm. once a day. There was no intolerance to this second course of DDS. The dosage of thiosemicarbazone started at 25 mgm. once a day and was increased by 25 mgm. each week up to 150 mgm. a day. [Abstract by F. I. C. Apted. *Trop. Dis. Bull.* 62 (1965) 1007.]

Asshauer, E. Lederkyn in der Behandlung von Lepra. [Lederkyn in the treatment of leprosy.] *Ztschr. f. Tropenmed. u. Parasit.* (Stuttgart) 16 (1965) 73-76.

The author gives the case history of a patient suffering from lepromatous leprosy who was treated with Lederkyn (sulfamethoxy-pyridazine) and who showed a satisfactory response over an observation period of 18 months. The drug was given immediately after treatment with sulfones. [Abstract by F. I. C. Apted. *Trop. Dis. Bull.* 62 (1965) 877.]

Schulz, E. J. and Falkson, G. Effect of cyclophosphamide and of RO 4-6467 on leprosy. (*Correspondence*) *Lancet* i (1965) 912.

In a previous paper the authors reported the suppression of acute reactions in patients suffering from leprosy who were treated with large doses of cyclophosphamide intravenously. They now record that in an additional 9 patients with erythema nodosum leprosum (ENL), who were given the drug orally in small doses, there was no significant improvement. No improvement was shown in 6 patients with ENL who were given the cytostatic agent Ro 4-6467 (Natulan), 50 mgm. 3 times a day by mouth, but in 4 of these patients the white blood cell count fell to a low level. In both these trials the patients continued to receive their routine treatment for leprosy together with the new drugs. [Abstract by F. I. C. Apted. *Trop. Dis. Bull.* 62 (1965) 764-765.]

Pattyn, S. R. and Royackers, J. Traitement de l'infection expérimentale à *Mycobacterium leprae* chez la souris. [Treatment of experimental *Mycobacterium leprae* infection in mice.] *Ann. Soc. belge Med. Trop.* 45 (1965) 27-30.

Using a single strain of *M. leprae* obtained from Shepard, and repeating Shepard's technics of mouse foot pad inoculation, the authors found that DDS and DPT (Ciba 1906) completely suppressed experimental infections during the test period of 11 months. Etisul suppressed infection for the first 6 months, but by 9 months the bacterial counts were as high as in the controls. Sultirene (sulfamethoxy-pyridazine) suppressed the infection up to 6 months, after which bacteria multiplied, though to a less extent than in the control animals. Their result with DPT was contrary to Shepard's experience, although as regards DDS and Etisul they were in agreement. [Abstract by D. S. Ridley. *Trop. Dis. Bull.* 62 (1965) 1233.]

Palmer, E., Rees, R. J. W. and Weddell, A. G. M. Site of multiplication of human leprosy bacilli inoculated into the foot-pads of mice. (*Correspondence*) *Nature* (London) 206 (1965) 521-522.

Twenty foot pads of mice infected with *M. leprae* were examined for the site of multiplication of bacilli, by light and electron microscopy, after fixation in formol-sucrose. A few bacilli were found in macrophages lying in epineurium or in the connective tissue sheath of muscle. Occasionally bacilli were found in perineurial cells, but none in Schwann cells, and none was found in relation to motor nerves. Microcolonies of organisms, however, were found in striated muscle fibers, and these organisms, by contrast to most others, appeared to be viable. They lay either free in the fibers or in "satellite cells" in the fibers. The absence of cellular infiltration was striking. It was thought that muscle was the chief site of multiplication of bacilli in the mouse foot pad, which cast doubt on the hypothesis that multiplication is favored by low temperatures, muscle tissue being warm. Comparative studies with other mycobacteria demonstrated that

only *M. leprae* had a predilection for striated muscle. [Abstract by D. S. Ridley. *Trop. Dis. Bull.* **62** (1965) 879-880.]

✓ **Lennox, W. M.** Plastic surgery of the anaesthetic foot of leprosy. *Leprosy Rev.* **36** (1965) 109-117.

There is a tendency to avoid surgery upon the sole of the anaesthetic foot, and to rely mostly on footwear (after corrective surgery) to keep the patient free from ulcers. This is a sound attitude, but in certain instances shoes are not enough. It is then that a plastic procedure should be considered. Experience indicates that much can be done if the known principles of this type of surgery are adhered to. Denervated tissues heal almost as rapidly as normal tissues, providing a good blood supply exists; it is this fact which dictates the use of large flaps and broad pedicles. Plastic procedures which have been found to be useful in the management of the ulcer-prone anaesthetic foot are reviewed. Some of the indications for these procedures are discussed.—AUTHOR'S ABSTRACT

✓ **Tovey, F. I.** Reconstruction of the nose in leprosy patients. *Leprosy Rev.* **36** (1965) 215-220.

A new operation for reconstruction of the nose devised by the late Dr. N. F. Cockett is described. After the nose is freed from the underlying bone through a naso-labial sulcus incision the upper part of the resulting cavity is filled with minute cartilage chips and the lower part with a skin graft bag as in a posterior nasal inlay. After closure of the incision in the naso-labial sulcus a crest and columellar bone graft are inserted through a columellar incision.—AUTHOR'S SUMMARY

✓ **Garus, U. I.** [Fundamental principles in therapy of ocular leprosy.] *Voprosi Leprol. i Dermatol.* **19** (1965) 127-134.

Problems in the therapy of ocular leprosy are discussed, with special reference to the use of modern antileprosy drugs and other means and methods of systemic and local treatment. Attention is paid to the importance of combined and complex treatment of ocular leprosy, using different means of specific, pathogenetic, restorative,

antiallergic and symptomatic therapy, which guarantee the success of treatment only under conditions of rational use.—AUTHOR'S ABSTRACT.

✓ **Garus, U. I.** [Surgical treatment of ocular affections in leprosy.] *Voprosi Leprol. i Dermatol.* **19** (1965) 135-142.

Experience in the surgical therapy of ocular leprosy is summarized in this paper, based on 348 different operations on eyeballs and lids. The fundamental principles of ophthalmic surgery in leprosy are reviewed, and an appraisal of different ocular operations and technical details of their performance is given. The author notes some postoperative complications and stresses the greater effectiveness of surgical treatment under modern antileprosy therapy.—AUTHOR'S ABSTRACT

✓ **Lozano, J. M.** Estudio de las repercusiones hepáticas en los enfermos de lepra. [Study of hepatic complications in leprosy patients.] Thesis, University of Mexico, 1965, pp. 96.

Following a brief review of the present state of leprosy and existing literature on hepatic complications to which the disease is subject, a study was made of a sample of Mexican patients with different forms of leprosy, from three points of view, viz., clinical, functional and histopathologic changes. With respect to the first of these, 45 patients were studied, most of whom did not complain of any hepatic symptoms. In 24 patients four tests were made of hepatic function: the van den Bergh, total proteins and their separate types, total cholesterol and cholesterol esters, and transaminases. Among these patients hyperglobulinemia was discovered, together with a change in the albumin-globulin ration, in 10 cases (all lepromatous), and an increase in blood cholesterol and its esters in three cases and a diminution in six. Finally 12 biopsy examinations of the liver were made, which showed changes in hepatic structure in 7 cases (all lepromatous), with normal liver cells, and with acid-alcohol-resistant bacilli. Correlation of the three aspects studied revealed clinical and histologic changes in two lepromatous cases, functional and histologic changes in three

lepromatous cases, and, in the remainder, only isolated clinical, functional or histologic alterations. It was concluded that the lepromatous cases are the ones that show functional and histologic changes in the liver.—A. SAÚL

Garcia-Calderon, D. Las alteraciones cardiovasculares en enfermos de lepra. [Cardiovascular changes in leprosy patients.] Thesis, University of Mexico, 1965, pp. 135.

Literature is reviewed with reference to visceral manifestations in the different forms of leprosy, especially in the cardiovascular system. The following manifestations have been reported: sinus tachycardia during lepra reaction, acute and chronic angitis revealed by clinical manifestations (Lucio phenomenon, telangiectases, venous dilatations and lividity) and by angiographic alterations. The core of the investigation was a cardiovascular study of 20 patients in the Centro Dermatológico Pascua, including 13 lepromatous, five tuberculoid and two dimorphous cases. Of the lepromatous cases, five were in lepra reaction. The clinical study did not suffice to integrate any characteristic cardiovascular picture, except for a syndrome of exhaustion. Clinical manifestations of peripheral vascular insufficiency were not found, nor were radiologic changes in the cardiac silhouette. Electrocardiographic tracings in five cases (four lepromatous and one tuberculoid) showed incipient electric alterations; left ventricular hypertrophy was suspected, with vagotonia and disturbance in ventricular repolarization. In three cases in which autopsy was performed no cardiac changes were found.—A. SAÚL

Williams, R. C., Jr., Cathcart, E. S., Calkins, E., Fite, G. L., Barba Rubio, J. and Cohen, A. S. Secondary amyloidosis in lepromatous leprosy. Possible relationships of diet and environment. *Ann. Intern. Med.* **62** (1965) 1000-1007.

This is a cooperative study by authors from Carville, U.S.A. and from Guadalajara, Mexico, on the genesis of secondary amyloidosis in lepromatous leprosy. The authors at the Carville leprosarium studied

101 patients and estimated that 40 to 50% of them had concomitant amyloidosis. The results from Congo Red tests were often positive, and this fact was supported by 31% positive results in gingival biopsies, and the high proportion was previously confirmed by autopsy studies. The frequency of amyloidosis found at Carville is in distinct contrast to the results from the study of 119 patients studied at Guadalajara, where amyloidosis was diagnosed in only 6%. There may be dietary factors to account for this. Patients at Carville eat fewer calories but twice the percentage of saturated fat in their diet. Also, probable factors of immune stimulation (frequent erythema nodosum leprosum reactions, tuberculosis, syphilis, malaria, extensive suppurating ulcers) may stimulate the amyloid state in patients with lepromatous leprosy. As yet no single clinical factor can give a guide, during the progress of the disease, on the likelihood of the development of amyloidosis. [Abstract by J. R. Innes. *Trop. Dis. Bull.* **62** (1965) 1006.]

Hadler, W. A. Some cytochemical and cytophysiological properties of the cells from tuberculoid and lepromatous lesions. *Leprosy Rev.* **36** (1965) 171-181.

Lesions induced by inoculation of *M. leprae* and *M. lepraemurium* in the guinea-pig and rabbit display a tuberculoid structure, whereas in the rat they present a lepromatous structure. A cytochemical and cytophysiologic study carried out on these two kinds of lesion showed many differences in the biochemical and functional activity of the macrophage, which seems to be responsible for the development of physiologically different cells: the epithelioid cell in the tuberculoid structure and the lepra cell in the lepromatous structure. The macrophage was considered the most important cell in the lesion development and therefore was carefully identified, mainly by its argentophilia. Guinea-pig and rabbit macrophages are able to lyse phagocytized mycobacteria, and display a high degree of alkaline and acid phosphatase activity. They quickly split off lipids (phospholipids included) within its cytoplasm, since they have a high degree

of lipase activity. They show numerous mitochondria and some ribonucleic basophilia in the cytoplasm. The macrophage transforms itself into the epithelioid cell, which is not argentophil, is free from bacilli and contains very few lipids within its cytoplasm. The epithelioid cell displays, furthermore, alkaline and acid phosphatase and lipase activity; it is a cell that does not display phagocytic and athrocytic activity, but it is able to split off electronegative colloidal granules already contained in its cytoplasm. In the rat the argentophil macrophage is unable to lyse phagocytized mycobacteria. It shows feeble alkaline and acid phosphatase activity and splits off very slowly the lipids contained in its cytoplasm, a fact corresponding with its very feeble lipase activity. In this animal species the macrophage transforms itself into the lepra cell, which is slightly argentophil, and contains a great number of bacilli and lipid droplets within its cytoplasm. This cell is devoid of lipase, alkaline and acid phosphatase activity and of ribonucleic basophilia. It is able to phagocytize and to athrocytize granular matter. Results obtained in human tuberculoid and lepromatous lesions were similar to those stated previously. In the tuberculoid lesions the macrophage and the epithelioid cell are similar to the homologous cells from guinea-pig lesions. On the other hand, in lepromatous lesions the macrophage and the lepra cell are similar to the cells found in the rat lesions. The different behavior of the inflammatory cells in these two types of lesion seems to depend upon the interaction of bacilli and host cells, which provides the stimulus concerned in the biosynthesis of enzymes; some of them would be accounted for by the mycobacterial lysis. This hypothesis is supported by results involving the experimental stimulation and inhibition of the inflammatory cells induced by the *M. leprae* and *M. lepraemurium* inoculation.—AUTHOR'S SUMMARY.

Hadler, W. A., Ferreira, A. L. and Ziti, L. M. An attempt to stimulate and depress the functional activity of the inflammatory cells from lesions experimentally induced by *M. leprae* and *M.*

lepraemurium. *Leprosy Rev.* 36 (1965) 163-170.

An attempt to produce an experimental change in the functional activity of the macrophages from guinea-pig and rat lesions induced by *M. leprae* and *M. lepraemurium* was made with the aid of adrenal corticoid hormones, an antihistaminic drug and a substance that is admitted to depress the cell metabolism. The findings showed that two opposite effects could be traced, such as: (1) Cortisone and chlorpromazine-prometazine treatment, besides a decrease of the acute inflammatory reaction, exert an inhibitory effect upon the activity of the tissue macrophages. As a consequence, there is a decrease of mycobacterial rate of lysis by the macrophages, which readily become able to store a great amount of bacilli inside their cytoplasm. This effect could be well seen in guinea-pig lesions, where cells similar to the lepra cells do appear after treatment, allowing a marked alteration of the histologic structure of the lesion. A lepromatous-like structure emerges in guinea-pig-treated lesions, whereas a tuberculoid structure arises in untreated ones. (2) Desoxycorticosterone treatment, in contrast, increases the acute inflammatory reaction and stimulates the tissue macrophages, as could be established in the rat lesions. As a consequence, some rat macrophages became able to lyse the phagocytized mycobacteria, which allows the development of some areas containing epithelioid-like cells, without bacilli within the cytoplasm. Both effects show that the two structural kinds of lesions induced by *M. leprae* and *M. lepraemurium* might be affected by treatment that influences the mycobacteria-host cell interaction. This interaction could be related to the biosynthesis of enzymes, some of which have lytic properties for the phagocytized mycobacteria.—AUTHORS' SUMMARY

Vdovina, N. A. [Appraisal of some histochemical reactions in active and regressive lepromatous leprosy.] *Voprosi Leprol. i Dermatol.* 19 (1965) 105-111.

Fresh lepromatous lesions are rich in RNP and in neutral polysaccharides. In old foci the amount of RNP and of poly-

saccharides in foamy cells diminishes; it drops rapidly during treatment. In regressive leprous lesions the number of mast cells increases; some of them contain heparin-monosulfate, which gives a positive PAS reaction. The presence of a great number of plasma cells rich in RNP in leprous lesions is probably due to the development of a nonspecific immunologic reaction as a response to the continuous resorption of specific substances.—AUTHOR'S ABSTRACT

Ananyina, V. A. [Importance of the dosage of inoculum in experimental murine leprosy.] *Voprosi Leprol. i Dermatol.* 19 (1965) 117-120.

A dilution of 1:20 is usually employed for the inoculation of mice and rats with suspensions of murine lepromas. The author found a dilution of 1:1,000 to be sufficient for development of infection, in usual terms, in mice, and a dilution of 1:100 sufficient in rats.—AUTHOR'S ABSTRACT

Gay Prieto, J., Rubio Huertos, M. and Alonso Puertas, M. L. Experiments on the transmission of human leprosy to the chorio-allantoic membrane of the chicken. *Acta Leprol.* No. 23 (1965) 5-18.

On inoculation of the chorio-allantoic membrane with material from different types of human leprosy, macroscopically visible nodular lesions are obtained. These lesions have been reinoculated in the chorio-allantoic membrane and lesions were thus reproduced by serial passage. Histologically, these lesions are similar to a leproid granuloma, including foamy cells; within them no acid-fast particles can be observed until the sixth passage. The filtrate passing through a Mendel pore filter, from lesions from the fourth passage of lepromatous leproma material, gave lesions macroscopically and microscopically similar to those obtained directly from human leprous material. The submicroscopic structure of the different chorio-allantoic lesions has been compared with human lepromatous lesions by ultrathin sections under the electron microscope. Vacuolate cells with cytolysosomes and some globular forms and spheric bodies of 300 to 500 μ m. diameter, have

been observed in all of them. Some bacillary forms have been observed only from the sixth passage on. The presence of some of the globular forms and smaller bodies is interpreted as evidence of morphologic variations of the bacillary forms, perhaps stages of the L cycle.—AUTHORS' SUMMARY

Pattyn, S. R. and Janssens, P. G. Experiences with mouse foot pad inoculation of leprosy bacilli originating from the Congo. *Ann. Soc. belge de Med. Trop.* 45 (1965) 9-15.

In this paper, which was read at the VIIIth International Congress of Leprology, at Rio de Janeiro, in 1963, the authors report their confirmation of Shepard's results from the inoculation of *M. leprae* in mouse foot pads. The bacilli they employed were obtained from patients in the Congo. Full details are given. [Abstract by D. S. Ridley. *Trop. Dis. Bull.* 62 (1965) 1233.]

Lal, H. M. and Robson, J. M. Transmission of human leprosy to experimental animals; studies with "Chatterjee" bacilli. *British J. Exper. Path.* 46 (1965) 318-320.

In a study of the disease in mice due to Chatterjee's mycobacterium, which was originally isolated from human leprosy tissue, it was found that progressive infection could be produced by intracorneal inoculation, not only in the black mice used previously but also in albino mice. Systemic dissemination occurred after about 20 weeks and became widespread, involving the face, liver, spleen, peripheral nerves, meninges and muscles. The lesions simulated human leprosy in some respects, murine leprosy in others; the therapeutic response was closer to that of murine leprosy. The albino mouse was as good as the black mouse for passage experiments, though possibly not so good for the initial isolation from fresh lepromatous material. [Abstract by D. S. Ridley. *Trop. Dis. Bull.* 62 (1965) 1124-1125.]

de la Trinite, Sr. Marie. Characteristics of a mycobacterium strain (Chabotier) isolated from a leprosy patient. *Leprosy Rev.* 36 (1965) 207-209.

A mycobacterial strain (Chabotier) isolated from the biopsy specimen of a non-ulcerated ear lobe lesion of a patient who suffered from lepromatous leprosy, is described and compared with other mycobacterial strains. It is concluded that the organism is a urease-positive scotochromogen of Runyon Group II. It is distinct from *M. marianum*.—AUTHOR'S SUMMARY

Chung, Chih-Ying, Huang, Ts'ai-Hsien, Li, Hsin-Chang, Huang, Mei-Ch'in and Fang, Pan-Ts'un. A new technique for detecting *Mycobacterium leprae* and the problem of infectiousness of tuberculoid leprosy. Chinese Med. J. (Peking) 84 (1965) 390-394.

For the isolation of *Mycobacterium leprae* from tissue by enzymic digestion, papaya latex, obtained from papaw fruit, is recommended. By the method described, bacilli were detected in 26% of tuberculoid and unclassified leprosy patients, compared with 3.8% by a direct smear. The infectivity of tuberculoid leprosy is discussed in the light of these findings. [Abstract by D. S. Ridley, *Trop. Dis. Bull.* 62 (1965) 1121.]

Shepard, C. C. Vaccination against experimental infection with *Mycobacterium leprae*. American J. Epidemiol. 81 (1965) 150-163.

Foot pad infections in mice were used to test the possibility of vaccination against *M. leprae*. An infection with this organism in one foot pad, though self-limiting, did not protect against a superinfection in the other foot. But some other mycobacteria, given as vaccines, had an inhibitory effect on a subsequent foot pad infection with leprosy bacilli. Of the heat-killed vaccines the best was the human tubercle bacillus, though some immunity was given by 4 other mycobacteria. Still better were the results with live BCG; Danish BCG was somewhat superior to other strains tested. The routes of injection in order of merit were intravenous, intracutaneous, intraperitoneal and subcutaneous. Subcutaneous vaccines were improved by incorporation in Freund's adjuvant. Heightened protec-

tion was afforded by repeated doses, though this practice would cause too many reactions in man, as would intravenous injection. The efficacy of BCG against leprosy in mice was not distinctly inferior to that against tuberculosis in mice. [Abstract by D. S. Ridley. *Trop. Dis Bull.* 62 (1965) 880.]

Verma, B. S. and Dongre, A. V. Leprosy and A.B.O. blood groups. *Leprosy Rev.* 36 (1965) 211-213.

The blood group distribution of leprosy patients does not differ significantly from that of the general population. The data given here do not support the hypothesis that there is any difference in the incidence of leprosy among the ABO blood groups.—AUTHOR'S ABSTRACT

Juravleva, G. F. [Test for revealing auto-antibodies in the blood of leprosy patients.] *Voprosi Leprol. i Dermatol.* 19 (1965) 89-92.

By means of the precipitation reaction, with an antigen from a human leproma, one can judge to a certain extent the type of leprosy and character of the disease course. A positive precipitation reaction with the blood serum of leprosy patients and an antigen from normal skin, and negative results with antigen from liver and spleen, suggest that there are autoantibodies in these patients' blood against their altered skins.—AUTHOR'S ABSTRACT.

Mertzlin, G. V. [The serologic leprosy survey using our active modification of the complement fixation test.] *Voprosi Leprol. i Dermatol.* 19 (1965) 93-98.

The author's active modification of the complement fixation test, with the use of lepromins (Mitsuda's and that from rat lepromas) and BCG vaccine as antigens, makes possible an objective judgment on the effectiveness of therapy.—AUTHOR'S ABSTRACT

Coudert, J., Basset, A., Rousset, J., Pradinaud, R. and Lu-Huynh-Thanh. A propos de la valeur immunologique de la reaction de Mitsuda. [The immunologic value

of the Mitsuda reaction.] *Bull. soc. Path. exot.* **58** (1965) 132-140.

A study of skin reactions to the lepromin, manganum and tuberculous antigens, in leprosy patients and contacts, in Africa as well as in Europe, permits the differentiation, from the point of view of histologic mechanisms, of two types of clinically indistinguishable delayed reactions. The first one is classic: sarcoid-like, typically tuberculoid, characteristic of a tissue defense; the second one is allergic, unstable, corresponding to various antigens present at high titers, whatever the type of the disease. [From authors' abstract.]

✓ **Browne, S. G.** A positive Kveim reaction in a case of leprosy. *Leprosy Rev.* **36** (1965) 119-121.

A patient with leprosy is reported in which the Kveim reaction was "typically positive." In ten other patients whose leprosy lesions also bore some resemblance to cutaneous lesions of sarcoidosis, the Kveim reaction was negative.—AUTHOR'S SUMMARY

89 **Cuba. Ministerio de Salud Pública.** La lepra en Cuba. Estado actual y programa de control. [Leprosy in Cuba at present, and the control program.] *Rev. Cubana Med.* **3** (1964) 334-347.

In studying the infectivity and spread of leprosy in Cuba the Ministry of Public Health adopted 3 basic factors as recommended by the WHO Expert Committee on Leprosy in their second report, namely the degree of infection of the patient, the susceptibility of the person exposed to infection, and the type of contact. The report discusses the importance of a study of the epidemiology on the 3 bases stated. Classification into open and closed forms of the disease has the most practical interest, for the former constitute a reservoir of infection and the latter do not. Thus, patients with the so-called maculoanesthetic leprosy are usually not a health problem, as they are among those regarded as having the closed form. On the other hand, those with the lepromatous, tuberculoid, reactional, and dimorphous types do constitute a health problem. Susceptibility of

a natural or genetic type is now regarded as having a part to play. Studies and knowledge of the immunologic aspect are now increasing. Whether the actual contact is domiciliary or not deserves to be noted, and whether the contact is intimate and prolonged. The past history of leprosy in Cuba is strongly bound up with immigration, such as Negro immigration from Guinea, and European immigration from the Canary Islands. The first record of the finding of patients with leprosy in Cuba dates from 1613, when it was noted that there were 4 to 6 leprosy patients in Havana, and that they came from elsewhere. Only 2 years later the citizens of Havana complained that many patients perambulated the streets. Huts were provided in 1622 in a park, and at the end of the 18th century a central hospital was built for patients suffering from leprosy in Havana, and later in the cities of Camaguey and Santa Clara. In 1944 the national census of leprosy recorded 2,010 patients. This figure went up gradually, and the number is now estimated to be 4,500 patients. The increase may have been due to better epidemiologic methods rather than to a real increase. Leprosy in Cuba is practically uniformly spread in all the municipalities. Of the types, 52.7% are lepromatous and 19.2% tuberculoid, and the heaviest age impact is at 21-30 years. Of the patients, 93.9% were Cubans and 6.1% strangers, and the races are given as 61.5% white, 15.6% black, 22.5% mixed, and 0.8% yellow. The sex ratio is 57.1% male to 42.9% female. Details of the control program are given. The scantiness of personnel is the chief stumbling block. It is emphasized that it is considered important to integrate the program of control into the general public health service, and to carry on health education at all levels. [Abstract by J. R. Innes. *Trop. Dis. Bull.* **62** (1965) 635.]

✓ **Muñoz-Acevedo, E.** La lepra en Durango. [Leprosy in Durango.] Thesis, University of Durango, Mexico, 1965, pp. 38.

A study was made of the endemic in Durango, a central state in the Republic of Mexico adjacent to other states with a high prevalence of the disease, the munici-

palties adjacent to Sinaloa being the most affected. Actually the total problem in the state is not known, because of the lack of an organized campaign. Only the efforts of a dermatologist have permitted the assumption that the problem is important. Among 724 skin disease cases seen in consultation in 1962 and 1963, 23 cases of leprosy were found in the city hospital, the majority of which were lepromatous, originating from the municipalities of Tamazula, Canelas, San Dimas and El Oro. One hundred and eighty-eight patients were registered. An intensive campaign is needed by mobile units comparable to those in other states in the country, in order to avoid an extension of the endemic.—A. SAÚL

✓ **Canalizo, C. H.** El problema de la lepra en el Estado de Colima, Mexico. Estado actual. [The problem of leprosy in the State of Colima, Mexico. Present state.] Thesis, University of Mexico, 1965, pp. 73.

A study was made of the history and present state of leprosy in Colima, a small Mexican state with a high prevalence of the disease. It is probable that leprosy was carried to this state by the Spanish conquistadores, and intensified by commerce with the Orient in colonial times. The first census, made in 1927, recorded 15 cases. The present prevalence in the state is 1.63/1,000. The disease is most frequent among men 21-50 years of age, and in the municipalities of Manzanilla, Coquimatlán and Minatitlán. Of 319 cases studied, 58% were lepromatous. The campaign against leprosy in Colima was begun in 1936 with the inauguration of a dispensary, which worked under precarious conditions and without trained personnel. In 1960 an intensive project was carried out, with nine mobile units served by a physician and a nurse, which covered the whole state and discovered about 40 cases per year, three times as many as were previously found. The campaign against the disease continues, thanks to the determination of the physicians and nurses and the aid of health authorities of the country.—A. SAÚL

✓ **Gasparini, G.** La lebbra in Giordania.

[Leprosy in Jordan.] Arch. Ital. Sci. Med. Trop. e Parassit. 45 (1964) 672-678.

A recent survey of the present state of leprosy in Jordan has revealed certain interesting facts. All persons recognized in the country as sufferers from leprosy are treated in a special hospital, the only one for this disease, opened and maintained by the Moravian Church Mission, a German organization which for many years has operated in Arabia and other regions. The hospital is situated near Ramallah in a village called Abu Qash, in a hilly zone with a good climate. At present 15 patients are treated institutionally and another 17 in clinics. In the hospital there was no resident medical officer. Treatment of patients was the responsibility of a German nurse helped by local assistants. The diagnosis was made on clinical data supplemented with histologic examination. There are 3 separate cottages. Periodically a doctor comes from another hospital of the Mission to inspect and control the work. The author gives 2 tables from which can be deduced a decline of leprosy in Jordan. The patients of Abu Qash, both admitted and ambulatory, show this. Of the 15 inpatients, 12 had lepromatous leprosy and 2 dimorphous. The greater part of the patients came from the northwest of Jordan. Some came from the refugee camp in Jericho, 3 from Jaffa in Israel, and 1 from Lebanon. The fact that most patients had lepromatous leprosy does not rule out the possibility that others had indeterminate, intermediate or tuberculoid leprosy. A careful and detailed survey would be most useful to clear up this point. The clinical history of the patients of Abu Qash does not include reports of reactive phases typical of patients with lepromatous leprosy. Allergic reactive phases with DDS therapy were certainly not frequent. A careful collaborative survey of tuberculosis and leprosy is needed. [Abstract by J. R. Innes. *Trop. Dis. Bull.* 62 (1965) 757-758.]

✓ **Browne, S. G.** Leprosy in Eastern Nigeria. Reflections on cases diagnosed at Uzuakoli 1959-64. *Leprosy Rev.* 36 (1965) 133-137.

Control measures and comprehensive

treatment facilities in Eastern Nigeria have caused a dramatic fall in the total number of patients since 1949, but now eradication is difficult, as sporadic cases still appear. There is no doubt about the reduction in the disease, as in Uzuakoli and district clinics there were 603 patients in 1959, while in 1964 there were 494. The reasons given for seeking advice were, in order of frequency: (1) lesions which failed to disappear with indigenous treatments; (2) appearance of new lesions or spread of existing ones; (3) development of nodulation in unnoticed macular lepromatous disease; (4) nerve pain; (5) acute exacerbation (6) dermatitis from self-medication; (7) ulceration of anesthetic extremities; (8) acute foot drop, facial paralysis, lagophthalmos, sudden paresis of the intrinsic muscles of the hand; (9) epistaxis and nasal obstruction. There is delay in seeking advice, which adds to the long latent period since infection. An educated generation is arising which fails to recognize the less obvious stigmata of leprosy. The obvious counter is that now case-finding must depend on medical suspicion. Eradication and control must depend on a more effectual method of case-finding. The author gives epidemiologic and clinical details and many points for thought and makes it clear that this is not the time for relaxation. [Abstract by J. R. Innes, *Trop. Dis. Bull.* 62 (1965) 1120.]

✓ **Pillay, G.** Leprosy in the Cape. *South African Med. J.* 39 (1965) 423-424.

The author gives the case history of a woman who lived in the Transkei whose main complaints were of pain and swelling in the knee, shoulder and wrist. About 1 year after the first appearance of these symptoms erythematous slightly raised macules developed on the face and neck. Examination of nasal scrapings and of skin tissue proved negative, but extensive tuberculoid inflammation, together with the presence of occasional acid-fast bacilli, was demonstrated in a biopsy specimen of a cervical nerve. The cervical nerves on both sides of the neck were visibly thickened but there was no palpable thickening of the ulnar or occipital nerves. [Abstract

by F. I. C. Apted. *Trop. Dis. Bull.* 62 (1965) 876-877.]

✓ **Sharma, V. K. and Prasad, B. G.** An epidemiological study of leprosy in the Masauli block of Barabanki District, Uttar Pradesh. *Indian J. Med. Res.* 52 (1964) 1293-1312.

The authors give a careful epidemiologic report, with 13 tables and a map, of their study of leprosy in 71,805 persons in 64 villages in the Masauli Community Development Block in Barabanki District. Random selection was used, and 9.7% of the total population of the block were examined. Of the surveyed households 4.6% were found to be affected with leprosy, and the incidence rate, referred to the general population, was 11.7/1,000. Of the households, 8 had more than 1 member afflicted with leprosy, 1 household having 4 patients out of 7 members. From 20 to 49% of patients had lepromatous leprosy, but in the village group with the highest total prevalence of over 20/1,000 the lepromatous rate was as low as 11.1%. The rate in children was found to be low. In the whole number of detected patients with leprosy some deformity or disability occurred in over 25%. The disease as it occurs in Masauli seemed to be spread by extra-familial contact within the village. Once the disease took root in a family, overcrowding and increased intimacy of contact within the family seemed to facilitate its further spread. The disease was confined to people with low incomes. The prevalence rate was lower among the single caste hamlets, although the difference was not statistically significant. There was a higher incidence in laborers. Groups in which the largest number of patients appeared seemed to be mainly concentrated in the smaller villages. The authors recommend that to widen leprosy control in the area a combination of sample surveys and outpatient clinics should be established. [Abstract by J. R. Innes, *Trop. Dis. Bull.* 62 (1965) 634-635.]

✓ **Glasse, R. M.** Leprosy in Karamui. *Papua & New Guinea Med. J.* 8 (1965) 95-98.

Two adjacent linguistic groups live on the Karamui plateau in the interior of east-

ern New Guinea. There is a relatively high prevalence of leprosy in each group. An ethnographic survey of one month's duration, in connection with a BCG program, was carried out in 1962 for the Department of Public Health of Papua and New Guinea by R. M. Glasse and Shirley Glasse. This study formed the basis of the present report. The article describes the physical environment, and the character, occupations and living habits of the inhabitants, most of whom make their living by rudimentary farming. Approximately 5,000 people live in the two groups described. Leprosy has apparently been present in the Karamui region for several generations. Both natural and supernatural causes are believed locally to be responsible for the disease. Cutaneous and neural forms of the disease appear to be readily recognized by the inhabitants. Intimate contact is believed to play a role in contagion. The disease has been treated by the people with natural products, including certain plant products. In both societies patients with cutaneous and neural forms continue to reside with their families for a time, although their social contacts diminish. Divorce is rare. Patients with advanced leprosy, however, are segregated. Small houses, serving as leprosaria, are established for each clan; the community has little contact with the patients. A mother, however, is likely to take her children with her. Patients in the leprosaria are self-supporting by gardening and wood-cutting. Disposing of the remains of a deceased leprosy patient is looked upon as a hazardous task, and great pains are taken to avoid contagion.—E. R. LONG.

Gilbert, M. Soigner des lépreux? Combattre la maladie? A ces deux questions, une seule réponse. [Take care of leprosy patients? Fight against the disease? A single answer to the two questions.] *Acta Leprol.* No. 23 (1965) 19-46.

This paper gives a comprehensive picture of problems in the control of leprosy and the work of the World Health Organization and health authorities in different countries in meeting them. It is noted that leprosy is of concern in more than a hun-

dred countries and constitutes one of the most serious of medical, social and economic problems facing the WHO and its constituent countries. It is estimated that 8,500,000 cases may be under some form of treatment, a figure that does not count cases in China and countries not adhering to the WHO. Because of the great detail of this article, its broad contents cannot be well covered in an abstract. The author gives some indication of the prevalence of the disease at various ages in different countries from which reports are available, laments the tragedies involved, and deplores the lack of sufficient facilities to meet the problem adequately. The role of the WHO is outlined. The Executive Council set up a group of consulting experts in 1951, which promptly formulated general principles that should be observed in the campaign. Cooperation with UNICEF was noted, as well as that with the CCTA (Commission of Technical Cooperation with Africa). An important feature in the recommendation has been determination of the degree of contagion and the significance of the indeterminate form of the disease as a possible source of contagion. Age factors are outlined. Case-finding, to be fruitful, involves early diagnosis and determination of degree of contagion, and is to be followed by treatment and continued observation. Treatment of open cases serves as a preventive measure against spread of the disease. Mass treatment is essential; ambulatory chemotherapy is far less costly than hospitalization. WHO believes ambulatory therapy at home and in dispensaries should form the basis of mass campaigns against leprosy. Drugs available are listed, with emphasis on DDS. Simple criteria for arrest of the disease are listed. The roles of prophylactic chemotherapy and BCG vaccination are discussed. Finally the importance of rehabilitative measures early in the disease is stressed. The article indicates the regions in which the WHO is supervising studies; these include projects in Africa, the Americas, Europe, the near east, southeast Asia and the western Pacific region. The number of treated cases under observation by WHO and UNICEF reached 1,686,551 in 1965, or about a quar-

ter of the cases believed to exist in the regions covered. The budget of WHO for leprosy studies was US\$ 664,387 in 1965. The total used by WHO and UNICEF in 1965 in 37 countries amounted to US\$ 1,191,672. The article gives brief summaries of research projects in different countries and some indication of the various leprosaria, colonies, and other centers of treatment (private and governmental). A highly important part in the total campaign in these countries is played by private organizations. The importance of aligning all forces, official and private, is stressed. The creation of centers for training personnel is urged with provision of surgical equipment and equipment for physical therapy, and establishment of measures for case-finding and ambulatory treatment. The two questions of taking care of leprosy patients on the one hand and fighting the disease on the other are not distinct. Together they constitute measures in a single effort.—E. R. LONG.

Binford, C. H. Leprosy—a model in geographic pathology. *Internat. Path.* (Washington, D. C.) 7 (1966) 6-12.

The author refers to the "Handbook of Geographical and Historical Pathology" published (in English) in 1883 by August Hirsch, in which geographic pathology is defined as "firstly a picture of the occurrence, the distribution, and the types of diseases of mankind in distinct epochs of time and at various points on the earth's surface." Reference is made to successive epochs in the history of leprosy research. Binford notes at length the advances made in modern understanding of leprosy in medieval times, largely as a result of investigations by Møller-Christensen and others on ancient leprosy burial grounds in Denmark. Several immigrations that brought leprosy to different parts of the world are described (the slave trade and the Western world; establishment of a focus in Louisiana, U.S.A., from the movement of Acadians in Canada to that area; Chinese immigration, bringing leprosy into the Western Pacific islands, etc.) The author notes characteristic variations in leprosy in dif-

ferent countries, including differences in the relative preponderance of lepromatous and tuberculoid leprosy in different regions, acute forms (Lucio type) in restricted areas, and amyloidosis as a frequent lesion in some regions and an infrequent one in others, and finally calls attention to current advances in control, based in considerable measure on official recognition of leprosy as a major public health problem principally in tropical and subtropical countries.—E. R. LONG

The Madras Leprosy Conferences. *Leprosy In India* 38 (1965) 119-231.

This entire issue of *Leprosy in India* (Vol. 38, No. 3) is devoted to a record of two conferences held in Madras: Part I to the Conference of the Indian Association of Leprologists, 27-29 January 1965 and Part II to the Leprosy Workers' Conference, 29-31 January 1965. The former consisted of seven scientific sessions, devoted respectively to (1) acute exacerbations in leprosy, (2) genetics in leprosy, (3) plantar ulcers and corrective surgery, (4) chemotherapy of leprosy, (5) borderline leprosy, (6) physical medicine in leprosy, and (7) experimental medicine in leprosy. The report of the Leprosy Workers' Conference, carried as Part II of the issue of the journal included addresses by officials of the congress and numerous distinguished delegates, and reports of a working session, consisting of programs on (1) social aspects, including rehabilitation, (2) health education, and (3) leprosy control, its present status and suggestions for future work. Individual papers presented at the two conferences are abstracted and discussions of these papers by those in attendance are recorded. Some 350 delegates from India were in attendance and approximately 20 delegates from outside of India. Among a series of resolutions adopted by the delegates at the end of the Leprosy Workers' Conference were the following: (1) Realizing the importance of integrating leprosy with overall teaching programs, the Conference called the attention of governments and university schools of medicine to the necessity of placing the

same emphasis on leprosy as is given to tuberculosis, malaria, and other diseases of public health significance; (2) the Conference stressed the importance of leprosy health education, recommending encouragement of patients to take treatment early in the course of the disease, this, too, to be integrated with health education with respect to other diseases; (3) in order to prevent and correct deformities due to leprosy, the Conference resolved that every paramedical worker should be given adequate instruction in the basic technics of physical rehabilitation in leprosy, and that an appropriate syllabus be drawn up to implement this need; (4) the Conference recommended that a special conference be held in association with the next All-India Leprosy Workers' Conference for the purpose of considering technical aspects of surgery, physiotherapy and occupational therapy; and, (5) finally, the Conference formulated other resolutions to promote the training of occupational therapists and physiotherapists, and point out the advantage of early attendance by leprosy patients in programs of rehabilitation.—E. R. LONG

Dharmendra. Some facts about leprosy. Guide for social camps. Diocesan Press, Madras, India, 1965, pp. 14. Price 15 cents.

This pamphlet, priced at a very low figure to encourage wide distribution, gives information, in simple terms, on the nature of the disease, its geographic distribution in India, its principal types, the procedures used, its treatment and control, the deformities it may cause, and the severe socioeconomic problems it causes. The pamphlet, small as it is, is abundantly illustrated.—E. R. LONG

Tinoco, D. G. Novo índice para os trabalhos de controle da lepra. [New index for use in leprosy control.] Bol. serv. nac. de lepra (Rio) 22 (1963) 21-24.

The author suggests that by the annual determination of a rate named the Potential of Morbidity an estimate may be obtained of the number of new leprosy infections to be expected. To obtain this figure it is

necessary to know the number of infectious persons in a known population and the number of children under the age of 5 years. The application of the resulting figures in a mathematic formula provides the answer. [Abstract by F. I. C. Apted. *Trop. Dis Bull.* 62 (1965) 636.]

Pedley, J. C. Leprosy work in a general hospital in Nepal. *J. Nepal Med. Assoc.* 3 (1965) 45-51.

The author gives a general review of active leprosy work carried on by a Mission General Hospital in Nepal for the past 3 years. In order to provide a medical service for the people, the Government has divided the country into 14 zones and plans to build a general hospital with 50 beds in each zone. Details are given on the channeling of patients. Total admissions for leprosy in 1964 had risen to 62 (from 18 in 1962). Many patients pay something toward hospital expenses and a generous grant is given by the Mission to Lepers, London. All patients with leprosy are expected to engage in occupational therapy. The articles made are sold, and the patients' general well-being and self-respect are advanced. Corrective operations are performed for lagophthalmos by means of the temporalis muscle transfer graft, and reconstructive operations for foot drop and hand deformation. There is a hospital surgical theater with theater staff. The prevalence of leprosy in Nepal is generally accepted as not less than 10/1,000, and the apparent increase may reflect the fact that the people are now aware that relief is increasingly available. The integration of the work of a modern leprosarium into a general hospital is beneficial to general medicine and certainly is beneficial in removing the stigma of leprosy from the minds of the patient and the public. [From abstract by J. R. Innes. *Trop. Dis. Bull.* 62 (1965) 1003-1004.]

Zaragoza, F. J. Pasado, presente y futuro del Sanatorio Dr. Pedro Lopez en la lucha contra la lepra en México. Breve estudio psicosocial. [Past, present and future of the Sanatorium Dr. Pedro Lopez in the campaign against leprosy in

Mexico. Brief psychosocial study.] Thesis, University of Mexico, 1965, pp. 122.

A study was made of the leprosarium in Zoquiapan, the only one existing in Mexico, in order to evaluate its function and accomplishment in the care and prophylaxis of leprosy in Mexico. The opening chapters describe systems of control in the country from 1513, when the disease is supposed to have reached Mexico, up to the present. The account notes three phases: the first, from 1513-1930, limited to care of patients in a leprosarium; the second, from 1930-1960, in which care was based on dispensaries, leprosaria and preventoria, founded by Jesus Gonzalez Uruena; and the third, or present, since 1960, characterized by the use of mobile units, and modern policy of avoiding segregation and of practicing ambulatory treatment. A study was made of the leprosarium founded in 1939 in the State of Mexico, 30 km. distant from the City of Mexico. This study included its history, and a description of its physical state, personnel, functions, population and medical care, as well as a brief psychosocial inquiry. From this study it was concluded that the leprosarium was set up

precipitately, and that it has been defective in function. The treatment and care of the 300 still resident patients was considered never to have been adequately guarded, since the isolated patients follow their own wishes in this small community, with the resultant vices frequently observed in secluded persons, including alcoholism, abuse of drugs, and crime. The personnel, including physicians and nurses, is said to be very abundant, but not working well, and the equipment is considered antiquated and inadequate, and the attention given by the authorities to this asylum to be null. The population consists of 300 patients, most of whom are invalids, although some remain who are cured but do not wish to leave the hospital because of the adaptation they have made and interests they have developed. An integrated study of the asylum is recommended with a view to converting it into a center for rehabilitation, and it is concluded that when it becomes possible to rehabilitate the few patients isolated, when there are no longer leprosy invalids, and when cases are discovered before debility sets in, the one remaining leprosarium in Mexico fortunately will cease to exist.—A. SAÚL

BOOK REVIEWS

Historia de la Lepra en la Argentina. M. I. Quiroga. Press of the Ministry of Education and Justice, Buenos Aires, 1964. pp. 189.

This book, by the former Titular Professor of Dermatology of the Faculty of Medicine in Buenos Aires, and former director of the Antileprosy Campaign in Argentina, consists of 189 pages, including thirteen chapters and an appendix. The titles of the chapters are: (1) Leprosy in America; (2) Leprosy in Argentina; (3) First recognition of a focus of leprosy in the country, by the physician Manuel Rodriguez in 1792; (4) Leprosy in Argentina in the 19th century; (5) Argentine bibliography on leprosy in the 19th century; (6) First official prophylactic measures, set up by the National Conference on Leprosy in 1906; (7) The Law of Prophylaxis of Leprosy,

or Aberastury Law (11.359), passed in 1926 and still in force; (8) Formulation of the Aberastury Law, and its revision; (9) Sanatorium-Colonies for leprosy patients; (10) Hospitals and provincial and municipal facilities for internment of patients, up to the time of establishment of sanatorium-colonies; (11) Evolution of leprosy control from the time of the Dermatovenereologic Section to the establishment of the Dermatologic Campaign, 1927-1933; (12) The present state of the leprosy problem in Argentina; and (13) Private work in Argentine leprology. The Appendix carries the tripartite plan of operation for the project for control of leprosy in Argentina, involving cooperation by the Argentine government, The World Health Organization, and UNICEF, known as the "Convenio Argentina 28."

In a population of 20,775,207 inhabitants,

as of December 31, 1959, 11,026 leprosy patients were registered, with a calculated prevalence rate of 0.53 per 1,000.

This book, which is very well documented, reviews all the forces brought into action by official authorities, and private and personal institutions, such as the Patronato de Leprosos de la Republica Argentina, to bring about the eradication of leprosy in this country. From the account it may be deduced, however, that the endemic remains stationary in this country, in spite of so much vigilance.—E. D. L. JONQUIÈRES

Historia de la Lepra en Cuba. Miguel A. Gonzalez Prendes. Publicaciones del Museo Historico de Las Ciencias Medicas "Carlos J. Finlay," Havana, 1963, pp. 415.

The death of Miguel Angel Gonzalez Prendez, recently noted in these pages (*Internat. J. Leprosy* 34 (1966) 80-81) calls attention to the fact that insufficient note was made of his influential book, *Historia de la Lepra en Cuba*, in the pages of *THE JOURNAL*. This well documented history, dedicated by the author to his sons, carries the history of leprosy in antiquity and an account of its first discovery in America, which bore some relation to the voyages of Columbus and the influx of immigrants to the New World from countries in which leprosy was to some extent endemic. Exhaustive research has failed to establish the presence of leprosy in the Americas before the voyages of Columbus, and there is rather general agreement that the disease first became manifest in the western world after the introduction of Negro slaves from Africa. From then on numerous accounts were published of what indubitably appears to be leprosy in the Caribbean islands and Central and South American mainland.

Gonzalez Prendez has given a careful account of the history of leprosy in each

of the provinces in Cuba, and has related its spread to the movements of the working force in agriculture in the island. The account is fortified by a wealth of general history in Cuba, including the social conditions prevalent in different periods, and the changes in government, and of official efforts in the hospitalization and control of spread of leprosy. As in many other countries, the lot of leprosy patients in the earlier periods of the history was an unhappy one. A gradual improvement under successive administrators and ecclesiastic personnel is lengthily and very well described. Reforms were instituted by numerous leaders in public health. Much pithy biographic detail accompanies these accounts.

In the era of the Republic Carlos J. Finlay, noted for his definitive studies on the transmission of yellow fever, was the first of a series of well trained and competent heads of a modern Department of Health. He introduced new practices with respect to leprosy in several respects, one of which was the requirement of legal notification of cases. A census of cases and new provision for hospitalization followed this action. In the succeeding years private support for the care of leprosy patients aided notably in the campaign against the disease.

In general, the account emphasizes two aspects of the history of leprosy, viz., the part played by different administrations and the individual histories of the different regions of the country, each of which had special problems. The history does not close with any particular year or era, and emphasizes early more than recent history. A bibliography of 299 references is appended. By and large, the volume puts on record in an interesting way a detailed history of leprosy in Cuba, with special stress on the disease as seen in Spanish colonial times.—E. R. LONG