REVIEWS.

Leprosy. Rogers and Muir (3rd Edition).

The third edition of this well-known and standard work on leprosy was expedited owing to a large part of the second edition having been destroyed by enemy action. This has given the authors an opportunity to incorporate news views concerning the disease which have arisen as the result of research during the last six years. The book follows the general lines of previous editions, and much useful information on epidemiological data will be found. Sir Leonard Roger's experience and contacts with so many authorities are clearly evident in the first three sections, and workers in leprosy will appreciate the painstaking way in which the evidence has been amassed. The sections dealing with the clinical aspects and treatment of the disease show the wide experience of Dr. E. Muir, and anything which he writes bears the stamp of authority. We would have preferred to see a description of the clinical signs of neural leprosy placed before those of leproma, for as is rightly said, neural leprosy is a benign manifestation and, generally speaking, an indication of active tissue resistance. We are glad to note that this aspect of the pathology of the disease has been stressed. In future editions it is hoped that greater emphasis will be laid on the pathology of the disease, and that a complete chapter will be devoted to this, with a discussion on the tissue defence mechanism in leprosy, for it is the reviewer's opinion that the study of the cellular reactions in the corium of the skin is one of the keys which will help to open the way to a better understanding of the pathology of the disease.

The illustrations, probably owing to war time difficulties, are not up to the standard one would expect, and the introduction of a series of good photomicrographs of the various lesions would add greatly to the value of the work.

We consider that this book should be in the library of all workers in leprosy, and should be possessed by those who have an interest in the teaching and practice of tropical medicine.

R. G. COCHRANE.

International Journal of Leprosy (1944) Third War Number.

PRELIMINARY REPORT ON DIASONE IN THE TREATMENT OF LEPROSY, by Muir, E.

This was given intravenously and by the mouth, the dosage

being regulated according to the tolerance of patients from 0.3 to 2 g., particular watch being kept over the hæmoglobin percentage. Forty-three patients were treated for more than three months, and forty-one for less than three months.

"Of those treated for more than three months 24 out 43 showed marked improvement and 17 others showed slight improvement. Only two are classed as stationary. Of those treated less than three months none showed marked improvement, but 36 out of 41 showed slight improvement, five remaining stationary. It is interesting that in neither group did the condition of a single patient become worse. On the basis of these figures it is evident that those treated for the longer period showed the greater improvement."

The greatest improvement was found in those in the third stage of the lepromatous type, that is to say the stage in which nodules and thickened lepromatous patches have begun to ulcerate, and in which the eyes and nose are seriously inflamed.

PENICILLIN USED UNSUCCESSFULLY IN TREATMENT OF LEPROSY, by Faget, G. H. and Pogge, R. C.

"Seven patients with the lepromatous (nodular) type of leprosy were selected for treatment, since this is the type of disease which shows the least tendency toward spontaneous remission. The first and second patients were chosen to note if penicillin had any effect on recently developed nodules. From past experience at the National Leprosarium, new nodules seemed most amenable to treatment. Hence it was rational to expect favourable changes in new lesions if penicillin exhibited any specific action in leprosy. This expectation did not materialise.

The third patient was selected because the disease was of an early minimal type of lepromatous leprosy. It was felt that such a case offered penicillin an excellent opportunity to produce a favourable reaction if it had any merit in the treatment of leprosy. It did not do so.

The other four patients treated had more or less advanced lepromatous leprosy which had not responded to any previous treatment. In these cases it was thought interesting particularly to observe whether penicillin had any influence upon certain complications of the disease which were present. These complications included leprous ulcerations, erythema nodosum, iridocyclitis, leprous keratitis, leprous rhinitis and leprous laryngitis. Some of these complications were being activated by secondary infections. No beneficial effects were demonstrated in any of these patients, except for the healing of secondarily infected ulcers in one case."

[These results are different from those reported by Wharton in LEPROSY REVIEW, Aug. 1945, pp. 7-12.]

TRACHEOTOMY IN LEPROSY, by Sloan, N. R.

This is a report of a group of 144 patients in whom this operation was done for obstruction of the larynx. The average interval between admission to hospital and operation is 3 years longer than the average life of all lepromatous cases. This does not mean that presence of a laryngeal lesion prolongs life; it rather seems to indicate that most lepromatous patients do not live long enough to develop laryngeal stenosis. This is borne out by finding that of 32 lepromatous patients now living, whose first admission was prior to July 1, 1929 (15 years ago), 16, or 50 per cent, are

now wearing tracheal tubes; and of the remainder 7 show evidence of larygeal leprosy which may require operation later.

"Leprotic laryngitis is found only in lepromatous patients, usually in those who first present lesions of the mouth or pharynx. The epiglottis is first involved and may become several times normal size; spread to the vocal cords produces gradual narrowing of the glottis, which may become so small that slight swelling of the mucosa can obliterate it and cause death. The narrowing of the glottis causes increased respiratory effort, and perhaps at times mild bronchiectasis. Bronchial secretions are expelled with difficulty, and their accumulation increases the dyspnea, producing a vicious cycle which can be broken only by providing an adequate airway."

TREATMENT OF NEURITIS IN LEPROSY WITH INTRAVENOUS CALCIUM GLUCONATE, by Pogee, R. C.

"It was found that 90 per cent of the patients whose neuritis was not helped by vitamin B_1 or local heat were either completely relieved of nerve pains, or helped so that simple analgesics gave complete relief within a week or two of starting treatment, utilizing intravenous calcium gluconate. When all cases are considered, the average is higher than 90 per cent."

The dose was 1 gm. or up to 8 gm. in a month.

A. R. Davison describes a case diagnosed as one of lepromatous leprosy in which active signs of leprosy and bacteriological findings became negative as the patient gradually developed lymphadenoma (Hodgkin's disease.)

H. J. Henderson found that "injection of acid-fast bacilli, obtained from spleens of human leprosy patients, into normal rabbits did not lead to the development of an anti-serum reacting with the serum of leprosy patients in such a way as to indicate the presence of specific leprosy becillus antigen in leprous serum."

Mom, A. M. and Bosombrio, G. write on THE DIFFUSION FACTOR IN LEPROUS SKIN. Following the work of Durán-Reynals, they found that

"The diffusion activity (R factor) of human skin is 50 per cent that of bovine testicular extract. The R factor is not modified in diseased and in apparently healthy skin of patients with tuberculoid leprosy. In cases of lepromatous leprosy the diffusion activity disappears completely from the skin. The diffusion activity of leprous skin is inversely proportional to the amount of M. leprae it contains. Extract of lepromatous skin appears to exercise an antagonistic effect on the diffusion action of extract of tuberculoid skin."

THE LEPROMIN TEST IN TUBERCULOSIS PERSONS IN A NON-ENDEMIC AREA, by Convit, J., Azulay, R. D. and Salgado, P.

The experiments were carried out at the Seaview Hospital, New York.

"Of ten patients, with various dermatoses, attending the out-patient clinic at New York Skin and Cancer Hospital, all reacted positively to tuberculin. Of this group 9 showed early and 8 late positive reactions to lepromin. Of four patients with Boeck's sarcoid, three reacted negatively to tuberculin and to lepromin. The fourth was weakly positive to

tuberculin, negative to lepromin on the early reading, but did develop a positive Mitsuda reaction. Of 108 tuberculous patients at Seaview Hospital, 70.4 per cent were positive to lepromin on the early reading and 46.2 on the late reading. This high proportion of Fernandez positives may be due to the fact that all idividuals were tuberculin positives. If so, comparative figures for Mitsuda positives would indicate that the Mitsuda reaction is less affected by cosensitization with **M. tuberculosis** than is the Fernandez reaction.'

LEPROSY IN MILITARY SERVICE, Faget, G. H.

This paper is supplementary to a paper by Dr. Hasseltine (*Int. Jl. Lep.* (1940) **8**, 501-508). Of 14 army veterans and 3 seamen, most came from parts of America where leprosy is endemic, and 7 had manifestations prior to enlistment which had been missed by the examining physician. It is considered probable that the hardships of war contributed to the development of latent leprosy. In the Spanish war almost all the 32 cases came from non-endemic states, and therefore probably acquired the disease during the campaign. In World War I the cases were as in this war, chiefly from endemic states. In both of these the cases occurred too soon to have been the result of infection during the campaign. "With the lapse of the long period of incubation of the disease, it can be expected that at least a small number of World War II veterans will become the victims of leprosy contracted on foreign soil."

THE HISTORY OF LEPROSY IN THE NEW ENGLAND STATES is related by H. E. Hasseltine. Most of these were in the State of Massachusetts and were 60 in number. From the other five states there were only 5. Before the founding of the National Leprosarium at Carville, Pa the patients were lodged on Penikese Island. When this was evacuated the island was turned into a bird sanctuary, as no-one would buy it because of the fear of leprosy.

A NOTE ON FAMILIAL RELATIONSHIP AND RISK OF DEVELOPING LEPROSY, by Bancroft, H. *et al.* This is based on work in the Philippines, where the risk of developing leprosy following exposure to a lepromatous case in a household has been shown to be eight times that for those not known to have a household exposure.

"The incidence rates for males are higher than for females for all familial relationships except where the primary case is a mother. Here the female rate of 8.10 per 1,000 person-years is considerably higher than the male rate of 1.95."

The numbers are however too small to be significant and the report is published in the hope that other workers will make further contributions to familial investigation.

Leprosy in India, Vol. XVII, No. 4, Oct., 1945.

TACTICS AND STRATEGY IN THE ANTI-LEPROSY CAMPAIGN, by W. H. Russell. This is a plea for a long-term plan for the control of leprosy in India. Vital to such a plan is the establishment at a suitable site of a Leprosy Institute of India, such as was recommended by the Report on Leprosy and its Control in India (1941). This would be a research and training centre and gradually come to lead the attack on the disease.

"If the main argument of the preceding paragraphs is sound, then it follows that tactics and strategy will always be closely related to one another, and on the whole tactics will be subordinate to strategy. Of course, that does not mean that individual enterprise will de discouraged, or experimental projects disallowed. On the contrary, the grand strategy of the Leprosy Institute of India would make generous provision for these patrols, which go out in advance of our main forces in order to locate the enemy and gain information about his strength. But the wise general, though he makes use of the intelligence provided by his scouts, does not allow them to waste his main strength by leading him hither and thither in a fruitless chase. He has a plan. He modifies it from time to time according to the information he receives, or perhaps even changes the direction of his main front to meet an important change in the dispositions of the enemy. But the plan is there, and all the tactical operations conducted by the general's troops are subordinate to it, because it aims at results required by an agreed strategy."

Dr. Dharmendra reports on *Leprosy in Bengal.* He estimates between two and three hundred thousand cases in Bengal. Of these 786 are segregated in seven in-patient institutions, and 18,960 are treated at some 138 out-patient clinics. He contrasts the comparatively small effort in Bengal as compared with Brazil, a country with approximately the same population.

The Therapeutic Effect of Promin in Leprosy, by G. H. Faget and R. C. Pogge. U.S.A. Public Health Reports (1945) **60,** 1165-1171.

A former report on this subject was abstracted in the August, 1945, number of *Leprosy Review.*

The authors discuss the causes of the favourable results obtained. Are they due to psychological response of the patient, are they spontaneous remissions, is improvement purely symptomatic and lacking in objective substantiation. are the effects limited to secondary infection or other complicating conditions? They argue that none of these fully explains the results of treatment.

' Since the first four hypotheses do not fully explain the improvement produced by promin in leprosy, it is possible that a chemotherapeutic action is tenable. The action of promin in leprosy has been observed to produce favourable changes on the specific lesions, the granulomatous nodules of the disease This improvement may be due to bacteriostatic or bacteriolytic action on Hansen's bacillus, but there is no way to prove this because the causative germ cannot be cultivated and the disease

cannot be reproduced in laboratory animals by inoculation of human material.

"Among the 62 patients treated for more than one year, there has occurred a reversal of bacterioscopy from positive to negative on several consecutive monthly examinations in over ten per cent of cases. An additional 30 per cent have had occasional negative tests since starting on the promin treatment. These laboratory findings tend to show that in at least 40 per cent of cases there has occurred a diminution in the number of infective organisms in the lesions of the disease. This suggests that promin has some chemotherapeutic action in leprosy."

Also during treatment with promin 21.6 per cent of cases changed from a positive Kahn test to a negative and in 0 was this process reversed. In a control group these percentages were respectively 8 and 16. The dose of promin is 1-5 gm. daily intravenously. In some with toxic reactions the maximum daily dose did not exceed 2 gm. 6 days a week in courses of two weeks, with one week of rest between courses. Since this technique has been adopted toxic reactions have been few and of a minor nature.

In their conclusions the authors say :—

"Evidence of clinical improvement in a study of 137 leprosy patients treated with promin indicates that at present it is the treatment of choice for this disease . . . It is hoped, however, that further research will discover a still more powerful chemotherapeutic drug for the mycobacterial diseases."

Treatment of Eye Lesions in Leprosy, by Chorine, V. *Bul. de la Soc. Path. Exot.* (1945) **38**, 255.

The author first refers to the varying incidence of eye lesions in leprosy given by different writers, from 5 to 10 per cent in India to nearly 100 per cent in Hawaii, Paris, Norway and U.S.A., and over 60 per cent in Russia and 80 per cent in Japan. The author attributes this difference to climate, the eyes being more affected where the climate is severe.

[This however would fail to account for the large percentage in Hawaii. Much depends on the type of the disease. In India the lepromatous type rate is less than 25 per cent of the whole, and many of the neural cases are of a mild and localised form and do not affect the face.]

The treatment he recommends is the weekly injection of para-aminophenyl-sulfamide (septoplix) in a 15 per cent solution of distilled water round the circumference of the orbits. This stops the evolution of ocular complications in leprosy and provokes regression, sometimes marked, of recent lesions. He first anæsthetises the skin by injecting at the chosen site 4 to 5 c.c. of 1 or 2 per cent stovaine, and then injects 6 to 10 c.c. of sulfamide solution, half round each eye, in the areas already anæsthetised, either on a level with or above the eyebrows, or on the nasal or temporal side. The injections are made weekly at a different point

each time, and fresh solution should be used. This treatment was first thought of because the author had noticed that infiltration of the base of skin nodules with this drug not only caused benefit at the point of injection, but also cleared up nodules at a short distance.

Thirteen patients were treated by this method. Of 5 with recent lesions, and of whom 4 were practically blind, 4 have recovered eyesight compatible with normal existence. In the case of those with more long-standing lesions, there is little or no amelioration.

Experimental Treatment of Leprosy with Solutiazamide, by L. de Souza Lima. *Revista Brazitiera de Leprologie* (1945), **13,** 97-100.

The writer mentions the difficulty of obtaining a soluble preparation of sulphathiasol which will not be too alkaline and act as a caustic. The preparation he uses (salutiazamide, a soluble modification of sulphur thiazol) has a pH between 6 and 7 and is given intravenously without irritation. The solution used contains 45.30 per cent of the compound, or 20 per cent of the base, 5.3 c.c. containing 1 gram. He begins with the intravenous injection of 1 c.c. and gradually increases the dose to 5 c.c. in children and 10 c.c. in adults. Injections are given daily except Sundays for three weeks, followed by a rest of one week. The dosage is controlled by counting the red blood cells and the hæmoglobin percentage, examining the urine every 10 days and by estimating the blood concentration of the drug.

He treated two groups of lepromatous cases, one of 50 moderately advanced, and the other of 50 more advanced with cutaneous, ocular and nasal complications which had not yielded to chaulmoogra treatment. The results were as follows: The progress of the disease was arrested in certain cases from the beginning of treatment. There was rapid healing of leprotic ulcers, cicatrization of lepromas and flattening of the skin, clearing up of subcutaneous nodules and healing of perforating ulcers of the feet. In some cases the eye condition flared up for a time, but after a short period this disappeared. Patients with scabs and blocking of the nasal passages obtained marked relief; they no longer needed to wash out the nose and they could breathe without obstruction.

As Flacourticeas Antileprocaticas. **(The Plants of the Flacourtiaceae Family used in the Treatment of Leprosy.)** By Helena Possolo of the Pharmaceutical Laboratory of the Department of Prophylaxis of Leprosy, Sao Paulo, Brazil.

This is a most comprehensive work of 132 pages. It describes the botanical features of the various genera and species of this family, and the physical and chemical qualities of the oils extracted from the seeds and used in the treatment of leprosy. The introduction deals with the geographical distribution of the Flacourtiacæ and the history of their use. Only three of the innumerable genera produce oil used in leprosy: Hydnocarpus and (in S. America) Oncoba and Carpotroche. The first chapter describes the tribe Oncobeæ and its genera, indigenous chiefly in S. America. The second chapter is devoted likewise to describing the Hydnocarpus species, while the third deals with the chemical qualities of Hydnocarpus oil. The fourth chapter describes methods of fractionation of Hydnocarpus oil. From the botanical viewpoint this is a most valuable compilation, and the illustrations give full details of the more important species.

One of the most valuable assets of this work is its comprehensive bibliography of over 300 references.