

REVIEWS

Leprosy in India. Vol. XX, No. 4, October, 1948.

The editorial in this volume is a study by S. N. Chatterji on the vexed question of leprosy and divorce. It is a careful study that should be read by everyone interested in the subject.

Frequency of the presence of leprosy bacilli in nasal smears of leprosy patients by Dharmendra and N. Sen. After careful and tabulated study, the authors conclude as follows:

"From the above study the following conclusions are made:

1. In case of leprosy of all types the bacilli are found more frequently in the skin lesions than in the nasal smears. This difference is specially marked in cases of the neural type.

2. In cases of the 'neural' type with bacteriologically negative skin lesions, it is rare to find leprosy bacilli in the nose. Out of the 2,834 cases this finding has been made in only 5, two of them being 'tuberculoïd' cases in the stage of reaction.

3. Although the finding of leprosy bacilli in the nose, in the absence of bacilli in the skin, is not a common feature, because this is possible, though rarely, it is important to make a bacteriological examination of the nose in addition to the skin lesions before declaring a patient a 'closed' or non-infectious case."

Leprosy in India. Vol. XXI No. 1, January, 1949.

This is the Havana Congress Number giving the official findings of the Congress on classification, therapy and epidemiology control. This material has also been published in the **International Journal of Leprosy** April June 1948 and the **Leprosy Review** of July 1948. Besides these, however, there are a number of short abstracts of the more important papers presented to the Congress. **Leprosy in India**, Vol. XXI, No. 2, April 1949.

This has an account of the All-India Leprosy Workers' Conference held in Calcutta from the 29th-31st December 1948. After the official opening, speeches and messages of goodwill, the scientific session began.

Session 1. The Treatment of Leprosy. Papers were given by Doctors R. G. Cochrane, Dharmendra and S. N. Chatterjee on sulphone drugs. Papers by Dr. Teichmann and Dr. Roy were also given on hydnocarpus oil. These papers were followed by a stimulating discussion on the part of various members.

In Session 2 the *Control of Leprosy* was discussed and in the third session the histopathology and classification of leprosy. It is obvious, from this last session, that a great deal more work and clarification is necessary before we can come to any established basis for classification which will be both international and permanent. It is obvious from the findings of this Congress that

India is facing the problem of leprosy with considerable anxiety, zeal and aptitude, and this whole number could be studied with profit by leprosy administrations in other territories.

Injection of sulphetrone and diasone in leprosy by Dr. S. N. Chatterjee. The author used a 3.3 per cent solution of both sulphetrone and diasone, working up from 1 to 5 c.c. intramuscularly twice a week. This method is considered definitely more economical and less toxic than when these drugs are given ordinarily, and the author suggests that more extensive trials of this method should be used.

General principles in the treatment of leprosy with particular reference to the sulphones by Dr. R. G. Cochrane. This is a vigorous study of Dr. Cochrane's views on the use of sulphones, and the author's intentions and feelings make it worthy of the closest study. It is not everyone, however, who will agree that "no case showing neural macules, tuberculoid or neural anaesthetic lesions should be given sulphone therapy." The author ends on a timely note of warning against undue optimism and lack of perspective.

Some brief comments on the classification of leprosy by Dr. R. G. Cochrane. In this study Dr. Cochrane proposes one or two changes. He introduces the term "Dimorphous Leprosy" to describe the border-line case. He would then alter the South American uncharacteristic classification and use this latter phrase for the pre-lepromatous macule. He also advocates the avoidance of the terms 'neural' and 'tuberculoid.'

Leprosy and its relief in the industrial town of Jamshedpur by Dr. B. Dalal. This is an important steel centre in Bahar with a total incidence of leprosy of 4.9 per cent per thousand. The work of a leprosy clinic is briefly described, and the need is stressed for an agricultural colony.

A note on the histopathology of leprosy by Dharmendra. The author summarises as follows:

1. A plea is made for creating interest in histological studies in leprosy on a wider scale in India, though of course priority should be given to the studies on treatment and control of the disease.
2. A description is given of the typical findings generally met with in the 'simple' or 'uncharacteristic' tuberculoid, and lepromatous histological pictures, and in the borderline, intermediate, or doubtful group it is pointed out that a particular histological picture, with perhaps the exception of the lepromatous histology, is not confined to one particular clinical variety of the disease.
3. In the tuberculoid and lepromatous histology, certain findings may sometimes be seen which are not typical of the respective type, but the subsequent course of the disease in a long-term study of selected cases has shown that these variations are not of any special significance.
4. It is suggested that classification of leprosy should not be based

primarily on histology. In the opinion of the writer the use of histological terms to indicate clinical types results in confusion in many instances.

Some comments on the classification of leprosy recommended by the Havana Congress by Dharmendra. This studies the classification which was recommended by the Classification Committee of the Havana Congress, and which was subsequently rejected at a general meeting. The author summarises his views in the following conclusions:

"It can therefore be concluded that the recommendations of the Classification Committee of the Havana Congress mark an improvement in certain respects over the Cairo Classification and the Pan-American Classification, but that in certain other respects they introduce features which create more difficulties. The recommendations merit serious consideration of all workers, and if it is possible to remedy the defects, they can form the basis of a universal classification.

"Regarding the main classification, the conception of two main types and a 'group' appears to be acceptable to all, the only difference of opinion is about the term 'tuberculoid' used to designate one of the main types. A search has to be made to find a more suitable and less objectionable term, though it appears to be a difficult task to find a word likely to meet general approval. To the writer the term maculo-anaesthetic appears to be less objectionable, the main objection against it being that the term macule in general dermatology refers only to a flat patch. However, leprosy workers are familiar with its use in a wider sense as it is being at present used to designate both the flat and thick patches of the neural type (vide the term neuro-macular). If the term maculo-anaesthetic or some equivalent term is acceptable, then the cases with purely polyneuritic changes without any skin lesions will have to be taken out from this type and placed in the 'indeterminate' group. This arrangement has much to be said for it because on the one hand there is considerable amount of justification, since the prognosis in purely polyneuritic cases is uncertain, and secondly, it will do away with the difficulty of splitting up such cases into tuberculoid, lepromatous, and indeterminate (or alternately these purely polyneuritic cases may be placed in a separate class but that would mean 4 main classes in place of 3).

Regarding the clinical subdivision of the main types the main changes which appear to be necessary would be to find a place in the indeterminate group for the thick borderline, intermediate, or unclassified patches of leprosy and, as suggested above, to do away with the terms like tuberculoid-polyneuritic, lepromatous-polyneuritic, and intermediate-polyneuritic.

According to the above suggestions the three main classes (2 types and 1 group) would be maculo-anaesthetic, lepromatous, and indeterminate. In the maculo-anaesthetic, there will be included flat and thick patches of the present neuro-macular variety; in the lepromatous, the various clinical varieties in this type; and in the indeterminate the flat, and thick patches (not covered by the maculo-anaesthetic or the lepromatous types), and the purely polyneuritic cases (in case the purely polyneuritic cases are placed in a separate class, the number of classes will be 4 and of course these cases will be excluded from the indeterminate group)."

Some observations on the treatment of leprosy with the sulphone drugs by Dharmendra. The author points out that the use of sulphones in leprosy is now established beyond the experimental stage. Dr. Dharmendra's main plea, however, is for a scientific trial of combined treatment with sulphones and hydnocarpus oil. (Such a trial of the two main drugs known to be efficacious in leprosy is by now overdue. The experiment should be made under

the aegis of an efficient scientific body such as the Indian Council of the British Empire Leprosy Relief Association. It might even be preferable if combined experiments were carried out on the same scientific basis by authorities in such different territories as India, Malaya, East Africa and West Africa. Only by a correlated study of such experiments can we arrive at authoritative conclusions on the most effective methods of leprosy treatment.—Ed.)

If tomorrow we were sure of a specific for leprosy? by T. N. Jagadisan. This article is a deeply moving account of the human problem in leprosy, pointing out that the mere introduction of a remedy cannot by itself remove the human misery and stigma of the disease. It is a plea for a wide scale campaign of education, prevention and rehabilitation. In the author's own concluding words: "I like to think that a specific (cure for leprosy) would throw out a wider challenge and show leprosy to be what it is, a test of social sincerity, and that we shall answer the challenge and obtain the victory.

Control of Leprosy by Dr. E. Muir. In this article Dr. Muir summarises his well known views on the social steps which should be taken to prevent the spread of leprosy. He suggests that there are seven factors in India which facilitate the spread of the disease—concentration and increased contact due to migration and movement of population, congested housing, defective cleanliness, defective diet, the weakening effects of other diseases, climate, and lastly, ideas and attitude. He advocates a widespread campaign of increased knowledge to replace the superstition and dread of the disease which at present exists. This could be done by village societies in whom he believes the hope of the future of the new India rests.

Welfare work for leprosy patients by Shri N. Ramakrishnan. This article deals with the very pressing problem of the psychological and physical rehabilitation of a patient. The task of the actual leprosy settlement is dealt with under the headings of vocation, effective treatment, health, education and social life. The task of dealing with out-patients is dealt with under care of family, follow-up, rehabilitation, out-patients and publicity and propaganda. This is a carefully written paper and deserves attention.

Leprosy in Calcutta by Dr. P. Sen. The leprosy problem in India has, in the past, been considered mainly from the point of view of its rural aspect. Urban leprosy has not so far received the attention that it merits. This is possibly due to the fact that surveys are very much more easily conducted in villages than in cities. Dr. Sen's contribution in this article therefore is extremely

welcome. The number of cases of leprosy in Calcutta, with a population of roughly four million, is variously estimated as between 20,000 and 40,000. The author pleads the very great seriousness of the problem of leprosy in Calcutta, and the richness of the field for the study of epidemiology and control. He summarises as follows:—

1. Even though the incidence of leprosy is low in Calcutta, diffusion of leprosy and population pressure per square mile is highest in the province. Hence the risk of spread of the disease is considered greatest in the city, particularly under the prevailing conditions of acute housing shortage, extreme congestion in transport services, unawareness of communicability of leprosy and malnutrition.
2. Calcutta is considered eminently suitable for the proposed All-India Leprosy Institute and the grounds thereof are indicated.
3. The urgency of the problem calls for a comprehensive undertaking of measures for control and treatment of the disease by the authorities.
4. Leprosy being a long-term sickness entailing a large expenditure of money, advisability of exploration of sharing the burden between the Provincial and the Central Government is suggested.
5. In a city like Calcutta private generosity, if properly canalized, should be a great help in grappling with the problem.

International Journal of Leprosy, Volume 16, No. 3, July-September, 1948.

Haematologic Study of Leprosy Patients Treated with Diasone, by Drs. J. M. M. Fernandez, E. A. Carboni, Pedro Tommasino and M. M. Gimenez. This is an important study of the red cell alterations occurring under diasone therapy, with a comparison of patients treated with hydnocarpus oil. This is the authors' summary:—

"The clinical symptoms, frequency and relation to intensity of treatment, and the course of the anaemia produced by diasone are described. It is shown that the changes in the blood picture are limited to the red blood count, without disturbance of other components. The anaemia begins early in the first weeks of treatment and as a general rule abates with complete recovery during the periods of rest from the drug.

Investigations made in the treated patients have included the reticulocytosis, urobilinuria, bilirubinemia, and red blood cell resistance; the results of biopsy of the bone marrow in certain cases are also given. The findings show that the anaemia is not due to a toxic action of the drug in the bone marrow, since there is good reticulocyte response in all cases and no leucopenia; furthermore, bone marrow biopsy shows a normal or increased erythroblastic activity, and granulopoiesis is also normal or increased. It is therefore deduced that the drug acts as a haemolytic toxin, as shown by the decrease in the red-blood-cell resistance, the presence of urobilin in the urine of almost all the cases, the absence of bile pigments in the urine, of direct bilirubin in the blood, and the absence of indirect bilirubinemia in the great majority of cases.

Taking these facts into account adequate therapeutic measures, based on clinical experience, are suggested.

CONCLUSIONS.

As a result of this study we have come to the following conclusions.

1. Diasone produces an early anaemia, which begins in the second week of treatment.

2. The anaemia is probably due to a toxic haemolytic effect on the drug, because: (a) there is a definite decrease in the red-cell resistance; (b) urobilin is consistently found in the urine; (c) bile pigments are not found in the urine; and (d) the indirect bilirubin determination has proved negative in almost all cases.

3. The anaemia is not due to a toxic effect on the bone marrow, because: (a) there is a satisfactory reticulocyte response in all cases; (b) bone-marrow biopsy shows normal or increased erythroblastic activity; and (c) granulopoiesis also is normal or increased.

4. The toxic effect is transitory, as shown by the fact that the blood changes disappear when the drug is withdrawn.

5. Clinical experience has shown that the anaemia is usually benign and seldom requires interruption of the treatment.

6. Use of the common antianaemic remedies—iron liver and vitamin B complex—produces a favourable reaction, increasing the tolerance of the organism for the drug."

Effects of Sulphone Treatment on the Larynx in Leprosy, by Dr. N. R. Sloan. The author points out in this brief article that laryngeal improvement is one of the most dramatic results of sulphone therapy, whatever form of sulphone is used. He concludes:—

"Improvement of laryngeal lesions is one of the most striking results of sulphone treatment, perhaps the most striking one. The reason for this is undetermined; possibly it is the generous vascular supply. It appears to make no difference whether the drug is promin or diasone, if it is used in adequate dosage over a sufficient period of time; and improvement may be seen in only a few weeks or months. We feel that patients who are beginning to show laryngeal dyspnea should be carefully watched for the first months of treatment, so that emergency tracheotomy may be performed if necessary; but often it may be avoided. It is our firm conviction that the response of laryngeal lesions to treatment would justify use of the sulphones even if no other benefit were derived from them.

SUMMARY.

The sulphones—promin and diasone—are of great value in the care of patients suffering from lepromatous laryngeal involvement, both in those who have not required tracheotomy and in those who are wearing tracheal tubes. In an experience of less than two years with these drugs at the Kalaupapa Settlement, 9 patients have been able to remove tubes as a result of that treatment, and at least two (perhaps 5) have been saved from tracheotomy. The last death from the chronic bronchitis which follows tracheotomy was in February, 1947; the last tracheotomy was in May, 1947."

The Intradermal Metboly Test for Anidrosis; A Diagnostic Aid in Leprosy, by Dr. Harry J. Arnold, Jr. The author describes the technique of the metacholine test, and the following is an extract:—

"The method of performing this test (1) does not differ in any essential respect from that employed by earlier workers, except that it involves (a) the use of metacholine, which is a relatively stable and readily available substance, and (b) the demonstration of the sweat response in control areas outside the lesion by Minor's method.

The materials required for the test are as follows:—(1) a bottle of Minor's solution (crystalline iodine 2 grammes, castor oil 10 cc. absolute alcohol to make 100 cc.); (2) ordinary cotton applicators for applying it to the skin; (3) metacholine chloride in 1 per cent. aqueous solution (conveniently prepared from a 25 mg. ampoule of macholyl chloride by dissolving it in 2.5 cc. of sterile saline in a rubber-capped vaccine bottle); (4) a hypodermic syringe graduated in 0.01 cc.; (5) a 26 gauge, one-half inch hypodermic needle; (6) dry gauze for blotting off the drop of solution which back-leaks from the injection site; (7) powdered starch (ordinary cornstarch seems to be quite as satisfactory as the rice starch powder recommended by Minor; and (8) a powder-blower type of atomizer for application of the starch.

The lesion or area to be tested, plus a roughly equal area of adjacent normal skin, is first painted with Miner's solution; this will dry rapidly, but it is not necessary to wait for it to do so. Approximately 0.05 to 0.1 cc. of metacholine chloride solution is then injected intradermally at the border of the lesion, so that the elevated wheal will be partly inside and partly outside the involved area. In larger lesions two additional injections may be made, one entirely within, the other entirely without, the lesion. These merely make the demonstration more dramatic and in general add little to the ease of interpreting the test. The droplet of solution that leaks back from the injection site should be gently blotted (not wiped) off, and the whole area quickly and lightly dusted with powdered starch, blown from the atomizer.

Within a few seconds, also, sweat droplets will begin to appear at the mouths of those sweat glands which are still functionally intact. They moisten the dry white-over-tan iodine-starch combination, which immediately turns deep blue-black and remains so. This clearly visible sweat secretion spreads rapidly over an area concentric with the intradermal wheal, to a radial distance of about 1 to 3 cm. The response reaches its maximum within two or three minutes.

If more than three injections of 0.1 cc. are made, the patient may experience transient systemic discomfort from the absorption of metacholine. If the dose does not exceed, say, double that amount, the result is almost always limited to generalized sweating, flushing of the face, some salivation and slight malaise. Urination and defecation may be stimulated by larger doses, or in the rarely encountered hypersensitive individual. Atropine, in the usual therapeutic doses given by hypodermic injection, is the precise pharmacologic antidote."

Report of Leprosy Lesions of the Fundus, by Dr. David C. Elliott. This is a most interesting clinical account of a case with leprosy lesions in the posterior segment of the eye. This appears to us to be an original advance in our knowledge of the evolution of leprosy ocular lesions. The author's summary is as follows:—

"1. In a case of leprosy classified as of advanced lepromatous type, an acute ocular disturbance resulted in an examination which disclosed lesions on the fundus, which are believed to be lepromatous in character.

2. These lesions are identical ophthalmoscopically with those seen on the iris in this patient and in others; iris lesions of this kind have been histologically proven to be true lepromas.

3. The relatively **transient** character of these "pearl" formations, both on the iris and on the fundus, is illustrated by this case, in which these lesions have developed and receded within a period of **eight** months of observation.

4. It is believed that unless such an eye could be obtained accidentally at the time such a manifestation is observed clinically, histological confirmation of the nature of these lesions will be difficult to obtain. There may be no distinct pathological condition remaining to be observed in the eyes **which** come to examination many years after the acute process has passed."

A Comparative Study by Electron Microscopy of the Morphology of Mycobacterium Leprae and Cultivable Species of Mycobacteria.
by Drs. F. W. Bishop, L. G. Suhrland and C. M. Carpenter.

The Effect of Fixatives on Staining Procedures for Lepra Bacilli in Tissues, by F. Leon Blanco and G. L. Fite. In this brief article it is recommended that for a **demonstration** of leprosy bacilli in paraffin sections the following are recommended:— (a) Fixation in Zenker's fluid; (b) the use of thin blocks, with minimal time in dehydrating and clearing fluids; (c) staining by the oil fuchsin method, and (d) mounting in one of the modern synthetic mediums, 'clarite' or 'permount,' never in balsam.