REVIEWS

Lecture Notes on Leprosy by John Lowe, M.B., Ch.B. (British Empire Leprosy Relief Association (Indian Council), Delhi, India.

This booklet supplies the need for a small, concise and cheap publication on leprosy. It is based on lecture notes which the author has used for several years as the basis of a series of six lecture-demonstrations delivered as part of the D.T.M. and D.P.H. course in Calcutta. It is intended for non-specialists who wish to grasp the most important practical points regarding leprosy, also for those who have to teach others about leprosy in medical colleges and schools.

The book is clearly and concisely written, and contains 46 excellent illustrations. It concentrates within its 56 pages a wealth of information in an easily assimilable form, at the same time referring readers to larger works for further details when desired. While written primarily for doctors and students in India, it should prove useful also in other countries where leprosy is a problem.

Short Notes on Leprosy by D. N. Mukerjee, M.B., Leprosy Specialist to the Government of Central Provinces and Berar, India.

This booklet condenses into the small space of 25 pages much of the most recent teaching with regard to leprosy. It is not sufficient for anyone who wishes to specialise, but sufficient for anyone who wishes to obtain a working knowledge of leprosy. It does, however, fulfil its object of "acquainting anti-leprosy workers with the up-to-date advances or modifications in the classification, treatment and various other aspects of the disease," and for those who require it, introduces them to other literature. It should serve a useful purpose, especially in India.

Through the Leper Squint by Anthony Weymouth.

This is a study of leprosy from pre-Christian times to the present day. On the whole the facts recorded are correct, though there is a certain number of inaccuracies. The book is attractively written and is intended for the layman as much as, or perhaps more than, the medical reader. It contains an account of the disease in Biblical times, with special reference to the descriptions in Leviticus, Kings, and Job; classical antiquity, in which it is mentioned by Aretaeus of Cappadocia, Celsus, Pliny, and Lucretius; the Middle Ages, and modern times. A special chapter is devoted to the Knights of St. Lazurus, whose order was founded by St. Basil in the fourth century for the care of the sick, and lepers in particular, and was dissolved in 1830. Other chapters deal with leprosy in legend and literature, the story of Father Damien, leper colonies of to-day, and the modern treatment of leprosy. The text is liberally interspersed with portraits of Hansen, Danielssen, Sir Leonard Rogers, and Father Damien, photographs of various types of the disease, and other illustrations. Tables dealing with the chronology of leprosy and its incidence throughout the world, and a bibliography of English and French works, are appended. The book is published by Selwyn and Blount, price 12s. 6d.

La Lèpre, Diagnostic—Traitement—Prophylaxie, by A. Dubois, Bruxelles, Imprimerie Industrielle et Financière, 47 Rue du Houblon.

This little book is based largely upon the writer's experience of leprosy in the Belgian Congo and has special reference, in the section on prophylaxis, to conditions in that country. There are some excellent photomicrographs in the clinical and clinical anatomy section. There is a preface by Prof. Marchoux. The book is condensed and practical and follows, to a large extent, lines

similar to the book recently published by the Indian Council of B.E.L.R.A. It should be of great value to leprosy workers, especially those in Belgian and French Colonies.

International Journal of Leprosy, Vol. 7, No. 1. Jan.-Mar. 1939.

The first half of a Review of *The Bacteriology of Leprosy* is given by E. B. McKinley. After reviewing all the claims that have been made to cultivate the bacillus artificially up to 1918, he says:

"It seems necessary to admit that none of these organisms was established beyond question as the true leprosy germ. We therefore pass to what is here designated as the period of our newer knowledge of the bacteriology of leprosy, with apologies for determining in an arbitrary fashion where one period should leave off and another begin, or indeed that two periods should be recognised."

[The second half of this review appears in the April-June, 1939, number of the Int. Jl. of Lep.].

K. O. Courtney writes on *Leprosy in Panama.*

"At the time this study was begun there were 109 lepers in the colony, 32 of whom were females and 77 were males. Of the total no less than 78, or 71 per cent, were of Spanish-Indian origin (mestizos). The remaining 31 were of foreign origin. . . . . Leprosy in Panama appears to be a familial disease, which the writer interprets not as an example of biologic inheritance of the bacterial invasion, but as evidence of inherited predisposition to leprosy, coupled with prolonged intimate contact with the disease."

S. S. Juschko writes on *Hydrophylia of the Tissues in Leprosy.* This is tested by McClure and Aldrich's "Wheal test" (QRZ) which is carried out as follows:

"On the inner surface of the forearm 0.2 cc. of physiologic salt solution is injected intracutaneously, and the time required for the resulting wheal to disappear is registered. The reaction is considered ended when the wheal can no longer be seen or palpated."

His conclusions are:

"In leprosy, disturbance of the water exchange, as demonstrated by means of the McClure-Aldrich wheal test, is very frequent—95% of cases. The acceleration of the QRZ parallels the extent of the specific leprous processes. The QRZ is accelerated in lepra reaction. Specific leprous changes of the hands and feet (edema leprosum of Jadassohn) are accompanied by acceleration of the QRZ. The skin phenomena of leprosy (namely the chronic inflammation processes), influence the acceleration of the QRZ. In leprosy the QRZ is of as much importance in the determination of the general condition of the patient as, for example, the red-cell sedimentation test."

H. Ross writes on *Blood Glutathione in Leprosy.*

M. Suwo and S. Kin write on *Culture of Leprous Tissues in Vitro Using as a Medium Tissue-Culture of Skin Nodules from Human Leprosy.* The method used and the results obtained are abstracted as follows:

"Small pieces of skin nodules of human leprosy grow well in tissue culture. The growing tissue is composed chiefly of fibroblast-like elements and epithelioid cells. Both of these elements always contain leprosy bacilli in their protoplasm in much greater numbers in the epithelioid cells

than in the others. Epithelioid cells take up vital stains actively, while on the other hand the fibroblast-like cells take few or none of the pigment granules. Under the influence of the multiplying leprosy bacilli the fibroblast-like cells are converted into pigment-storing epithelioid cells, both in the explant and the growing zone. Lepra cells develop in vitro from the epithelioid cells. Leprosy bacilli multiply, not only in the body of the cell but also in the nutrient medium, after the culture is gone, without forming colonies visible with the naked eye."

R. O. Prudhomme reports on *Weakening of the Virulence of Stefansky's Bacillus with Ultra-violet Rays.*

"Irradiation of from 2 to 5 minutes causes attenuation of the virulence and a change of character in the evolution of the disease: absence of local lesions and limitation of the infection to the superficial ganglions, which are not enlarged. Bacilli irradiated for 10 minutes show themselves to be avirulent and are destroyed by the organism of the rat."

J. Lowe reports on *Tuberculoid Changes in Lymph Nodes in Leprosy.* Definite changes of this nature were found in six out of eleven cases examined.

In an Editorial, Prof. Marchoux puts forward three suggestions:

"That infectious material from the greatest possible number of lepers be inoculated into rats to determine if different germs can cause leprosy. That the Hansen bacillus be inoculated in all the animals existing in the vicinity of the investigator, for the purpose of discovering a receptive one. That leprologists find out what becomes of the bacillus found in the superficial lymphatic ganglia of apparently uninfected persons."

In answer to a question as to why it is difficult to retain the acid-fastness of lepra bacilli in sections, Dr. Wade points out that after treating the section with xylol or other oily substance changes take place which facilitate the removal of fuchsin by alcohol. Lowe avoids the use of alcohol by drying the sections between xylol and water. Wade used certain essential oils and thus avoids both alcohol and desiccation. Dr. Wade hopes to publish his technique in the near future.

International Journal of Leprosy, Vol. 7, No. 2, Apr.-June, 1939.

This number opens with an article by J. Lowe and S. N. Chatterji on *Seasonal Variation in Leprosy in Calcutta.* Analysis of records of new cases at the Calcutta leprosy clinic over two years showed a marked increase in the attendance of neuromacular cases from March to October, as compared with the rest of the year. Also during March, April and May the percentage of these cases showing positive bacteriological findings rose from 5 to 26 or 27. The cause of this is discussed and the authors connect it with the high temperature and low humidity prevailing during these months. Oberdoerffer's theory that this seasonal variation is due to eating of colocasia is rejected. [It is a well-known fact among the natives of Bengal that leprosy and tuberculosis become worse in the three hot months; also at the end of this season people are affected with

boils. Possibly the condition in all three diseases is dependent on adrenal exhaustion owing to preoccupation of these glands with the more urgent task of regulating the body temperature.]

Von A. A. Stein writes on the *Morphology of Lepra Reaction.* In a previous article the author described the clinical manifestations of lepra reaction, divided into three types: (1) with the new eruption of lesions, (2) with only reactivation of old lesions, and (3) mixed, with both. From his new observations and those of other observers it is concluded that the supposedly new reaction lesions studied were not new at all, but were old ones that were not evident until they were activated by the reaction. This and other features are discussed in some detail. It is pointed out that one cannot really speak of two types of reaction because the apparently new lesions are actually old ones made evident, the pathological process being the same in both. The difference between the two clinical forms is only quantitative, not qualitative.

A. Rotberg writes on *The Reading of the Lepromin Test.* A former article by this author dealing with a similar subject was reviewed on page 130 of the April number of *Leprosy Review.*

The *Irritant Action of some Drugs Derived from Hydnocarpus Oil* by H. Paget, J. W. Trevan and A. M. P. Atwood.

"It has been shown beyond question that the principal cause of excessive irritation by hydnocarpus preparations is the presence of oxidation products of the unsaturated and unstable acids, chaulmoogric, hydnocarpic and dehydrochaulmoogric. Their presence is due either to the use of deteriorated seed as a source of the oil, or to exposure to light and air of the oil or of the esters or salts of the acids. Once formed, these products cannot be completely removed by washing or by distillation, and they give rise to volatile and irritant products in the course of manufacture of the esters." "Iodised ethyl esters of the crystalline acids are unstable on exposure to air, but oxidation is inhibited by addition of 0.1 per cent of catechol or pyrogallol."

M. Kervingant and L. Baré write on *La Lepre en Nouvelle-Calédonie en 1936.* Leprosy is stationary among the indigenous population and is diminishing among the Europeans and immigrants as the result of the work of the medical specialists. Contagious European patients are hospitalized or isolated in their domiciles, while contagious natives are segregated in agricultural colonies: non-contagious patients are kept under observation and treatment. Suspects are carefully examined. This method of dealing with leprosy is popular among the people, and they come readily to the doctors.

Leprosy in Queensland, by R. Cilento. The quinquenial number of lepers detected rose from twelve in 1905 to 65 in 1935. The average ages at time of notification among whites is 41 and among coloured 33.9.

"The numbers are too small to establish an incidence in the various age groups. The youngest leper was seven and the oldest ninety-two. It is to be remembered, of course, that cases are usually found after the disease has existed for some years, and, in many instances, for many years. The outstanding fact of importance is that an increasing number of children show infection, indicating the established endemicity of the disease."

A. P. Davis writes on *Leprosy in Western Australia.* Leprosy was introduced by the indentured labour of the pearling industry as leprosy is fairly common in the Asiatic countries from which the crews were drawn.

"The problem of leprosy is therefore for all practical purposes confined to the Kimberleys. Careful supervision of, and, where practicable, absolute prohibition of, the southern migration of northern natives into 'clean' parts will tend to delimit the disease and will enhance the prospect of ultimately stamping it out. . . . The situation, therefore, while serious enough to contemplate, is not in my opinion as desperate as has been suggested, and I believe it is now well under control. There is no doubt that cases of leprosy will continue to crop up for some time to come, but they will be found, I think, in gradually decreasing numbers. Nevertheless, there should not be any relaxation of vigilance in the inspection of those parts from which in the past the great majority of cases have been drawn."

The conclusion of the Review on *Bacteriology of Leprosy* by E. B. McKinley, is given. Among the concluding remarks is stated:

"Considering all of the facts it must be said that there does not exist today *any absolute proof* that any investigator has actually succeeded in the artificial cultivation of the leprosy bacillus. We are aware that there are investigators who will not agree with this statement, who probably feel that organisms cultivated by them from the tissues of lepers represent the true *M.leprae*. We can appreciate this point of view. Yet the author with his colleagues, who have also secured cultures which they feel are probably of that organism, are of the opinion that that statement is the only fair one that can be made at this time. Nevertheless, we feel definitely that our organism has more in its favour than any other one which has been submitted as *M.leprae*, though it is grown only with great difficulty and is very sparse in growth. Obviously further advances as regards cultural methods are required. Meanwhile, no doubt, other investigators will be critical of the rather feeble results which we are able to obtain, but we hope that at least serious efforts will be made to confirm our findings up to this point.

As for animal experimentation, we feel again that the only fair statement which can be made at the present time is that no investigator has yet succeeded in producing in any experimental animal the counterpart of human leprosy as it is known in man. Naturally, in this statement we include our own attempts in this direction, though we feel that we have perhaps gone somewhat farther than others in establishing our organism as *M.leprae* through animal experimentation. There is hope that new approaches to this problem may eventually lead to success in producing progressive lesions of the disease in lower animals. If this can be accomplished in a satisfactory manner, then there is also hope of eventually determining beyond doubt whether or not a given culture, suspected of being the leprosy bacillus, is really that organism."

A comprehensive and valuable bibliography is given with 296 references.

Leprosy in India, Vol. II, No. 2, Apr. 1939.

There is an article by J. Lowe and S. N. Chatterji on *Surgical Removal of the Sheath of the Ulnar Nerve in Severe Leprous Neuritis.* They consider that cases suitable for this " operation are those in which thickening and inflammation of the ulnar nerve is marked, but is of relatively short duration, and in which the deformity of the hand has either not yet developed, or else is slight. The operation must be done at the right time before the nerves have been permanently damaged. We think the operation is possibly most beneficial in the type of case in which caseation is likely to take place in the nerve, but in which nerve abscess has not yet occurred. This is the type of case which shows marked tuberculoid lesions in the skin or nerves. In cases in which the nerves are already caseous, the benefit from the operation in the prevention of deformities is slight, because the nerve damage has already been done. In suitable cases the operation if properly performed will, in our opinion, do no harm and will often do good. The operation does not cure the inflammation of the nerve and it was never expected that it would, but it is believed that the operation often prevents the inflammation of the nerve from producing destruction of the nerve fibres."

The following is a description of the operation.

" An incision from four to six inches long is made through the skin over the thickened inflamed portion of the nerve. The deep fascia over the nerve is then incised and also the intermusular septum covering the nerve. Sometimes the nerve has to be separated by blunt dissection from an adherent triceps muscle. Small vessels may be encountered. The thick inflamed nerve is thus freely exposed. With a sharp scalpel a small longitudinal incision is made in the middle of the anterior surface of the nerve sheath, and this incision is very carefully deepened until the nerve bundles are clearly seen. This small incision is then enlarged up and down the thickened part of the nerve by the use of a blunt instrument. The next step is to free the nerve bundles from the sheath. The cut edge of the sheath is held in forceps while a blunt instrument is used for separating it from the nerve bundles, working first on one side and then on the other and finally round the back of the nerve until in the centre of the affected part of the nerve, the sheath is free all round. When this has been done, a curved blunt instrument is inserted behind the nerve and in front of the separated sheath, and with the aid of the finger covered with gauze, the nerve sheath may be gently stripped upwards and downwards until the sheath is free over the whole length of the thick inflamed portion of nerve. The sheath is then cut through at the top and the bottom. It is much easier to remove the sheath in one piece than to remove it piecemeal. Not infrequently when the nerve sheath is first incised, the tension inside is shown by bulging of the contents; foci of caseous material may be found lying usually between the nerve bundles. Sometimes small abscesses are exposed.

Sometimes because of inflammation, caseation and adhesions, it is impossible to strip off the nerve sheath in the manner described, and in such cases three or four longitudinal incisions are made through the nerve sheath on different aspects of the nerve.

All cut vessels are ligatured and the deep fascia may be loosely sewn over the nerve, but if so, care must be used to prevent pressure on the nerve. The skin should be carefully sutured to produce a neat scar and quick healing. The whole operation should be done with great care and precision to avoid all damage to nerve fibres.

The operation may be done under local anaesthesia, regional anaesthesia or general anaesthesia. The actual operative procedure should take only a few minutes. On the evening following the operation it is advisable to give analgesics by the mouth or by injection."

An article by U. P. Basu and A. Mazumder on *The Keeping Properties of Hydnocarpus Oil* shows that early addition of creosote (4%) or hydroquinone (0.02%) inhibits auto-oxidation and markedly improves its keeping qualities. This should be added before boiling.

Leprosy in India, Vol. II, No. 3, July, 1939.

An article by R. G. Cochrane, N. P. Raj and E. Roy, describes *Treatment of Acute Lepra Reaction.* After recounting the signs and symptoms, the treatment by laxatives, alkalis and anodynes is described. Fouadin, a pentavalent antimony product in 2 cc. doses is preferred to potassium antimony tartrate. It can be given intramuscularly whereas the latter must be given intravenously. The importance of distinguishing lepra reaction from other febrile complicating diseases is emphasised.

J. Low writes on the *Indian Leprosy Commission of 1890.* Some of the inconsistences surrounding this commission are summarised in the last paragraph:

"To one unfamiliar with the ways of governments it is difficult to understand how within a few years the Government of India could solemnly declare, first that the only measure to control leprosy in India is the isolation of life of all persons with the disease, later that as a public health measure they propose to legislate for the isolation of vagrant lepers, and later still, that they believe that leprosy is rarely spread by contagion but nevertheless they propose to legislate (and actually do legislate) for the isolation of vagrant lepers and for the limitation of contact between healthy persons, and lepers, and articles handled by lepers."

Dr. Dharmendra writes on a *Re-Survey of the Village of Debipur Hir.* This note has been added to a reprint of the note on the original survey to be found on p. 208 of this number.

Blood Cholesterol in Cases of Leprosy, by Dharmendra and N. K. De, is summarised as follows:

"Blood cholesterol was estimated in 23 non-lepers and 250 patients suffering from leprosy. The mean average value in non-lepers was 163.44 mg. per 100 c.c. of plasma with a standard deviation of 48.34. In the untreated cases of lepromatous leprosy the mean average value was 129.09 mg. per 100 c.c. of plasma with a standard deviation of 34.24. In the untreated cases of neural leprosy the mean average value was 143.08 mg. with a standard deviation of 38.01. The average values in the treated lepromatous and neural cases did not differ significantly from the average values in the untreated cases in the same groups. There was no significant difference in the blood cholesterol values of Nm1 cases as compared with those of Nm2 cases. The administration of hydnocarpus oil was attended with an increase in the blood cholesterol in those cases which showed some improvement after the treatment. It is difficult to say whether or not the increase in blood cholesterol is the direct result of hydnocarpus oil administration."