

REVIEWS

Leprosy in India, Vol. XII, No. 1, Jan. 1940.

Leprosy and Dermal Leishmaniasis, by Dharmendra and S. N. Chatterji. The resemblance of the lesions in these two diseases is commented on and illustrated in a series of cases and excellent photographs. Cases of D.L. are often sent to the leprosy department of the Calcutta School of Tropical Medicine under the impression that they are suffering from leprosy. Differential diagnosis depends on the history, such as a previous record of suffering from Kala-azar; on clinical manifestations such as the site and number of lesions, absence of anaesthesia or nerve thickening; and laboratory findings, examination showing *Leishmania donovani* instead of *Mycobacterium leprae*. D.L. appears as hypochromic spots, thick erythematous lesions and nodules. It has a habit of concentrating round the nose and lips and leaving the ears alone. Many serious mistakes have been made in mistaking D.L. for leprosy. Occasionally the two diseases appear in a patient at the same time.

General Principles in Treatment of Trophic Ulcers in Leprosy, by R. G. Cochrane. After cleansing frequently changed eusol dressings or iodoform grs. 10 in eucalyptus oil oz. 1 with or without castor oil are among the remedies recommended. In foul ulcers saturated magnesium sulphate baths for ten minutes. Syringing out sinuses with dettol, 1 in 20 solution. The well-known method of small subcutaneous injections of hydnocarpus oil or other substances is mentioned, as is also strapping after inserting a paste consisting of sulphanilamide 75 grs., adeps lanae 18 drachms and liquid paraffin $6\frac{1}{4}$ drachms. Metatarsalectomy is used when this bone is diseased, the toe being left when it is healthy.

Leprosy in Ancient Hindu Medicine, by Dharmendra. The *Sushruta Samita* of 400 B.C. refers to leprosy under the name of Kushtha, which is divided into seven major and eleven minor forms. One of the former, Arunakushtha, is characterised by loss of sensibility to touch. The disease is supposed to be hereditary and also highly contagious, and it may come as a divine retribution for killing a Brahman, a woman or a relative.

Leprosy, by Sir Leonard Rogers and Ernest Muir, (2nd Edition), 15/-. Wright & Sons, Ltd., Bristol, February, 1940. The first edition of this excellent book on leprosy was published 15 years ago. The joint authors had both had great experience of leprosy work in India, Sir Leonard Rogers, indeed, having, during the long period of his service in India, been brought continually in touch with the problem of that disease, while Dr. Muir had similar experience and did similar work that continued into later years after his colleague had retired from the field. It was under such circumstances that the first edition was produced, with the two authors separated by the distance between England and India, making intimate collaboration between them difficult in the preparation of the work. There has been no such handicap in the case of this second edition, as the two authors both now live in England and have been able to work in closer association.

There have been several very important happenings intervening between the appearance of the two editions: the Leonard Wood Memorial Leprosy Conference at Manila in 1931 and the International Leprosy Congress at Cairo in 1938, the development of the British Empire Leprosy Relief Association and the extensive tours of inspection by Dr. Muir in the leprosy countries of a large part of Africa. The result has been that this second edition is enriched by all the fuller knowledge thus gained, and so embodies all the latest developments in leprology in such matters as early diagnosis, a wiser, more intelligent and humane system of prophylaxis and

prevention, and a very necessary recognition of the special susceptibility of young children to the disease; the formation of agricultural colonies, improved methods of the general treatment, as well as of the various types of special treatment of the disease.

The book is divided into six sections which deal with all phases of the subject: history and distribution, epidemiology and communicability, prophylaxis, prevention, isolation, the bacteriology of the disease; its clinical manifestations; and the classification of the various types. Special attention is given to the latest most approved methods of treatment as accepted by and recommended by the authors. Chaulmoogra oil and its derivatives and their methods of preparation and application are dealt with very thoroughly. The Cairo International Congress of Leprosy in 1938 reported that "hydnocarpus oil and its esters, administered intramuscularly, subcutaneously and intradermally, remain so far as our present knowledge goes, the most efficacious drugs for the special treatment of leprosy." Except for a few charts appearing in the text of the book, the eighty-one illustrations are placed at the end of the book.

As a scientific treatise on leprosy, the first edition held a very high place; this second edition will hold the highest place for authoritative teaching, as the work of two world-renowned leprologists. It ought to appeal also to general readers who are interested in work among lepers. The book is beautifully printed and is easy to read. The authors and the publishers are to be congratulated on the production of such a valuable work.

J. W. LINDSAY.

Revista Brasileira de Leprologia, Vol. VII, No. 3, Sept. 1939.

E. Mendes and G. de C. Cerqueira write on *Lepromin Experiments*. Their conclusions are as follows:—

"Lepromin consists of two portions: one solid, the other liquid, dissociable by filtration, the former being responsible for reactions. In the solid portion the bacillus plays a preponderant role in determining reactions. Since reactions depend on the bacillus, lepromin must be standardized. At present the only feasible method of standardizing lepromin is that of comparison. The extent and intensity of lepromin reactions vary in the same individual according to the dose and concentration. Reactions are no more produced by original lepromin in dilutions above 1/30. Variations in diameter of the nodule formed and in intensity of reaction are found in the same patient, according to the region of the skin where inoculation is made. Leprous individuals show great differences of reaction. Lepromin test is of the greatest value to ascertain local immunity."

A paper by M. Vespoli describes the *Treatment of Leprous Ulcers by Infiltration*. For that purpose he uses chaulmoogra oil and injects it round the edge into the subcutaneous tissue. Good results are obtained as is shown by a series of "before and after" photographs.

Leprosy in Colombia. The *Revista Colombiana de Leprologia*, Vol. I, No. 3, Oct. 1939, estimates the number of lepers in the Republic at 7,897 in institutions, 1,729 registered and other probable cases 7,170, making a total of 16,796. With the population of 8,801,816, this makes 1.92 per mile.

Analysis of Chaulmoogra Oils, by H. I. Cole and H. T. Cardoso. *Jl. Am. Chem. Soc.* 61, 2351, 2349, 2442, (1939).

The authors give the results of a qualitative and quantitative analysis of the three principal chaulmoogra oils, those from *Hydnocarpus anthelmintica*, *Taraktogenos kurzii* and *Hydnocarpus wightiana*. They also describe three new homologs of chaulmoogric acid: alepric, alepylic and aleprestic acids. These three are successively the next lowest homologs to hydnocarpic acid and to each other, each differing from the one above it by C_2H_4 . The percentage composition of the fatty acids of the three oils is as follows:—

Acids	<i>H. Anthelmintica</i>	<i>T. Kurzii</i>	<i>H. Wightiana</i>
Hydnocarpic	... 67.8	34.9	48.7
Chaulmoogric	... 8.7	22.5	27.0
Gorlic	... 1.4	22.6	12.2
Oleic	... 12.3	14.6	6.5
Palmitic	... 7.5	4.0	1.8
Lower homologs of hydnocarpic acid	0.1	0.4	3.4
Loss	... 2.2	1.0	0.4

Differential Diagnosis of Leprosy and Syringomyelia, by S. Schujman. *Revista Brasileira de Leprologia*, Vol. VII, No. 4, Dec. 1939.

Intradermal injection of one drop of a 1 in 1,000 solution of histamine produced a triple response in anaesthetic patches of skin in cases of syringomyelia; in cases of leprosy this triple response was not observed in the anaesthetic patches. The triple response consists of an immediate red halo of a half to one centimeter. A secondary erythema (in about 60 seconds) which extends from 3 to 8 cms. and has a diffuse margin; last to appear is a papule at the point of injection. In leprosy the peripheral neuritis

suppresses the pathway of the axon reflex; while in syringomyelia and other conditions with anaesthesia of central origin the cutaneous nerves are intact, so the histamine flare can be produced. The histamine test is a simple, rapid and accurate means of differentiating leprosy from syringomyelia and other diseases producing cutaneous anaesthesia of central origin.

Transmission of Human Leprosy to the Hamster by the Digestive Tract, by E. Burnet and H. Jadford. *Bul. de l'Acad. de Med.*, 122, 31, p.383, 7 Nov., 1939.

The authors fed a hamster (*Cricetus auratus*) for 12 days on material rich in bacilli taken from human liver. Nine months later it became ill and died. At the autopsy there were no outward signs of disease. Leprous foci were found in the lungs and liver and in the mesenteric lymph nodes, with characteristic lepra cells and bunches of bacilli. The conclusion is that in virtue of this experiment the digestive tract should be considered seriously as a route of infection.

Staining Acid-Fast Bacilli; the Effects of Fixatives and H-ION Concentration on Acid-Fastness, by J. W. Fielding. *Aust. J. Exp. Biol. and Med. Sc.* XII, 1934.

The author refers to the well-known fact that acid-fast bacilli vary in the degree of intensity with which they take up the stain, and that when present in tissue preserved by formalin or other fixatives they may fail completely to hold the stain. He then describes a series of experiments which tend to show that loss of acid-fastness is due to the low pH value of either the fixing solution or the stain. One of these was to subject smears with tubercle bacilli to boiling in 1 p.c. hydrochloric acid, after which, on staining with Ziehl-Neelsen, no organisms could be found. He claims that in tissue fixed in formalin or alcohol the factor responsible for the apparent destruction of acid-fastness is not the fixative, but changes brought about by autolytic action in the tissue which lower the pH value of the fixing solution. Destruction of staining power in sections is accentuated by treatment with fluids having an acid reaction, such as alcohol, xylol, balsam, etc., which are frequently used for lengthy periods, and by finally bringing them in contact with a carbolic acid stain which has a pH value of 2.0. Estimations were carried out with bulky tissue placed in 10 p.c. formalin supersaturated with sodium bicarbonate, showing an initial reaction of pH 8.0. Autolytic action in the tissue was responsible in one case for reducing the pH to 4.0 within a period of 49 days.

The author tested the well-known statement of Dreyer, that tubercle bacilli, heated 100°C in 40 p.c. formalin and then extracted in acetone at 65-70°C for twenty-four hours, lose their acid-fast characters; he found that, using alkaline formalin and alkaline acetone, there was no destruction of their acid-fast properties, and that the factor causing this apparent destruction is the same as that acting in tissues fixed in alcohol and formalin.

The author obtained excellent results by the following two methods of fixing and staining tuberculous or leprous material.

(1) Fixation of small pieces of tissue in 10 p.c. formalin containing 0.5 p.c. sodium bicarbonate and staining with Ziehl-Neelsen. Lung tissue containing numerous acid-fast organisms was placed in this solution for two weeks. Sections from this were stained with Ziehl-Neelsen, washed, and placed in 15 p.c. sulphuric acid. At intervals they were taken from the acid, counterstained, mounted and examined; after two weeks in the acid the bacilli showed fully 100 p.c. staining and acid-fastness. Whereas, with similar tubercle bacilli-laden tissue, fixed in ordinary 10 p.c. formalin for a month, sections stained similarly and immersed in 15 p.c. sulphuric acid for 66 hours, had lost 80 p.c. of their staining property.

(2) Staining tissue fixed in formalin or alcohol with an alkaline fuchsin mixture. The stain is made up in two solutions, (a) 0.25 p.c. sodium bicarbonate solution, and (b) basic fuchsin 1.5 gm. dissolved in 40 c.c. of absolute alcohol and made up to 400 c.c. with tap water, having a reaction of about pH 8.0. The two solutions are mixed immediately before use in the proportion of 1 to 3. Either steam for three minutes with the mixture, or heat the mixture to the boiling point and pour it on the slide and stain for at least ten minutes. Wash in running water, decolourize for two minutes in 15 p.c. sulphuric acid, wash and counterstain for two minutes with 1 p.c. methylene blue.

International Journal of Leprosy, Vol. VII, No. 4, Oct.-Dec., 1939.

Vitamin B₁ Excretion in Urine, by H. C. Hou. This is the first of a series of articles on the subject of vitamin B₁ in the treatment of leprosy. The author selected at random a number of patients from the leprosarium in Shanghai and found that in none of them was vitamin B₁ excreted in the urine, indicating that there was a vitamin B₁ deficiency in these patients. After the oral administration of vitamin B₁ this substance was found in urine in quantities similar to that in normal individuals, and the same results were obtained by parenteral injection. This excretion was not affected by the type of the disease or by the occurrence of fever.

The importance of adding vitamin B₁ to defective diet is emphasised in its bearing on the prevention and treatment of leprosy, the findings of J. A. K. Brown in S.E. Nigeria being quoted (see *Leprosy Review*, April, 1936, p. 54).

Conversion of Simple Macular Neural Leprosy to the Lepromatous Type, by J. N. Rodriguez, H. W. Wade and F. C. Plantilla. Three cases are traced as far as possible through this stage of evolution, the changing histological and clinical signs being described. The lepromatous form was first found in new lesions and not in the old simple macules.

The Course of Open Cases of Tuberculoid Leprosy at Cebu Leprosarium, by H. W. Wade, J. N. Rodriguez and J. G. Tolentino. This is the fourth article of a series on this subject. The authors emphasise the well-known fact that after lesions have existed for some time a secondary set of lesions may develop that can be ascribed only to metastatic dissemination by way of the blood stream. Lesions were found to pass from major to minor tuberculoids [or, in other words, a temporary phase of reaction appeared and passed off]. The article is well illustrated with photographs.

Inoculation of Human Leprosy into the Syrian Hamster, by J. A. Doull and E. Megrail. *Maintenance of the Golden Hamster*, by P. Laidlaw. These two articles deal chiefly with the technique of keeping and breeding hamsters for experimental work with human leprosy.

The Histopathology of Simple Leprids, by N. Ermakova. This form of lesion, which was placed by the Cairo Congress classification along with tuberculoid macules under the neural type, gives a histological picture different from both the tuberculoid and the lepromatous lesion. Neither the epithelioid cell and Langhan's cell of the former, nor the lepra cell of the latter are present. The histological picture is that of an ordinary chronic inflammation with small round cells arranged chiefly round the bloodvessels and generally accompanied by a similar small cell infiltration of the neighbouring nerves. "The following stages can be observed in the course of evolution of a simple flat leprid: (1) with diffuse erythema; (2) with marginal erythema and central regression; (3) with hypochromia and marginal erythema; and (4) the pale, depigmented condition."

The Fight against Leprosy in the French Overseas Territories, by H. Delinotte. The census of 1936 gave the total population of the French overseas territories as 1,212,436 French

citizens (Europeans and assimilated peoples) and 47,685,972 natives.

" In all the French territories overseas the numbers of lepers recorded, up to the beginning of 1938, reached 104,000. According to estimates that have been made there are in the neighbourhood of 170,000 cases in these territories. It is evident, however, that an exact index of the disease cannot be established until it has been possible to make a complete census of lepers among all the populations. That will be a work of long duration. This study shows how, under the inspiration of the things that have been accomplished, and the results that have been obtained in other countries, France has made an important contribution to the campaign undertaken against the world scourge of the disease of Hansen. The efforts of all those who are charged with conducting this great effort are guided, and justly appreciated, by the Consultative Commission on Leprosy of the Colonial Ministry, which ably assists the national government.

" The measures of prophylaxis employed have as a base the application of modern scientific principles and conceptions imbued with liberalism. These measures are supported by active propaganda which permits the natives of the colonies to understand better the end that is sought. As was recently written by Professor Marchoux, president of the Commission and also of the International Leprosy Association, in a communication presented to the Academy of Medicine: ' We no longer tolerate protection against the patient, but against the germ which he carries . . . We do not agree that the leper should be treated with less humanity than are persons with tuberculosis . . . For this horrible social evil which desolates the best among our possessions beyond the seas, we cannot expect to attain the result sought without the co-operation of the people, instructed with regard to the means of protecting themselves. It is to dissipate ignorance that we must today apply all our efforts.'

" The progress of public and personal hygiene, the resources of therapy made daily more effective, the understanding of the patients justified by aid given them unceasingly; these are the elements which permit us to anticipate the diminution if not the disappearance, in the French colonial empire, of one of the evils which oppresses them and contributes for a time to those things that impede their progress towards prosperity."

Vitamin A Treatment of Ulcers, by G. A. Ryrrie.

" In recent work with leprotic ulcers fairly definite indications have been seen that local applications of vitamin A have an almost specific healing effect. Any dressing with a substance rich in vitamin A—cod liver oil, red palm oil, minced goat liver, etc.—made up as an ointment will do. At present I am using shark liver oil which is cheap and has vitamin content of 22,000 international units per gram. Necrotic bone must of course be removed before benefit can be expected, and no alkaline substance should be used in the preliminary cleansing. In any place where sharks are to be had it is a simple matter to obtain a vitamin-rich oil; it is only necessary to wrap the liver in muslin and place it in boiling water, when the oil comes to the surface.

" Under this treatment it is amazing, and very pleasant, to see large intractable ulcers healing up. Vitamin A dressings are most valuable in very sluggish, anaemic or semigangrenous ulcers. The clinical maxim should be: the more intractable the ulcer the higher the concentration of vitamin A should be in the dressing. Conversely, the vitamin concentration should be lowered where there is already healthy granulation, otherwise over-stimulation will occur with tissue irritation. An agreeable preparation is:—

Red palm oil	...	...	4 parts
Cod liver oil	...	...	4 parts
Eucalyptus oil	...	...	1 part
Zinc oxide	...	...	1 part
Hydnocarpus oil	...	...	2 parts

For syringing sinuses the eucalyptus oil and zinc oxide may be omitted from the prescription. Applications of high vitamin A content should not be used on ulcerative tuberculoid leprosy. Shark liver oil or halibut liver oil will not heal ulcers that are due to concomitant syphilis, and if rapid healing of an ulcer does not take place the diagnosis should be reconsidered from this point of view."