REVIEWS

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The original articles are as follows:—

C. B. Lara and J. O. Tiong write on the *Problem of the Negative Inmates in the Culion Sanatorium.* Recent investigation

showed that 440 of the patients, about 25 per cent, had been clear of infection sufficiently long to allow them safely to return to the community-at-large. These are divided into adults (268) brought from different parts of the country, and those born in the institution (172). Of the first category 81 per cent are not ready or are unwilling to go home. Of the latter category many would like to be discharged, but they have no relatives to whom they could be sent. Of the first class of 268 there are 171 with deformities, 91 of them being males. Of the latter, 61 per cent would be able to support themselves if Government help were withheld, and the same proportion of female patients with deformities would be similarly able. Almost all those without deformities would be able to support themselves. Out of the 1,700 inmates in the sanatorium only about 40 per cent were taking treatment, some complaining of unconfirmable subjective symptoms and others unwilling to become negative for fear of being discharged from the sanatorium where they have security and a Government allowance. Of the 172 born in Culion 44 were orphans and, with the exception of one girl who had taken diasone, all had recovered from leprosy spontaneously with only very rarely a tendency to relapse, thus showing high resistance. Of those born in Culion and who were of age, almost all would be able to earn their living. The following recommendations are made to provide for the immediate and eventual relief of the inmates: an experienced and sympathetic social worker to maintain liaison with relatives at home; means to secure the property of inmates; means to improve the crops and livestock of the inmates; better education; and security of land tenure. Lastly, apprehension is expressed at the danger of many negatives remaining in the sanatorium and unrestricted opportunity to marry with the patients, which would eventually lead to a large number of births and infection of fresh generations of children.

The "Acute Infiltration" Reaction of Lepromatous Leprosy is the subject of a paper by I. T. Tahiri. He describes two forms of reaction in tuberculoid leprosy, one milder and the other more acute (*"acuter Schub"*). He describes three forms of reaction in lepromatous leprosy: (1) an acute reactivation caused by an increase of bacillus-containing cells; (2) *erythema nodosum leprosum* most frequently in the resorptive phase under sulphone treatment; (3) an acute infiltration syndrome, which is the subject of this article. It occurs abruptly in lepromatous cases, sometimes overnight, with an erysipelas-like eruption. "The acute infiltration lesion itself consists mainly of infiltration of lymphocytes, plasma cells and epithelioid cells, sometimes with Langhans or atypical

giant cells. Young lepra cells may be present in the new lesions, but older lipid-containing cells are usually absent. Seldom, if ever, are they found anywhere except outside the newly developed lesions, as if they had been pushed aside by the infiltration. Needless to say, lipid-containing cells are seen in the sites of resorption of old lepromatous lesions." In 22 of the 24 cases described the Mitsuda test was positive, and this may be temporary or more permanent. The differences between this and the reactional tuberculoid are that in the former the Mitsuda reaction is less strong, and the reaction occurs in patients with the lepromatous and not the tuberculoid type. It is suggested that, as in the border-line form the tuberculoid turns into the lepromatous, so this reaction may be a sign of the reverse process: the lepromatous (formerly borderline) regaining active resistance and returning to the tuberculoid.

Observations on the Morphology of Mycobacterium leprae by Ordinary Optics, Phase Microscopy, and Electron Microscopy, by K. R. Chatterji, N. N. Das Gupta and M. L. De. Material for examination was obtained from untreated active disease by trituration of fat-free biopsy material in physiological saline, and centrifugation. The material for the electron microscopy was fixed with osmic acid vapour, 2 per cent, for 10 minutes. The living bacilli were examined by phase microscopy. Comparable forms were found by all three methods: a short oval type of cell with 1 or 2 polar condensations; elongated types with double polar condensations; very long types with alternate light and dark zones; homogeneously dark elongated types. " From the study of these different variants it seems to us that there possibly exist two phases of the growth cycle—a slow phase of multiplication resulting in solid homogeneously dense forms, and a rapid phase resulting in forms possessing alternate light and dark regions." The various forms seen are illustrated by photomicrographs.

E. Gehr writes on *The Mitsuda Reaction with the Dharmendra Antigen in Various Groups of Healthy Persons in Surinam.* In all 1,499 persons were tested with Dharmendra's antigen. These are divided into 8 different racial groups. The positive reactions in non-leprous people are numbered as percentages as follows in these groups: Medical and nursing staff working at leprosy clinic and leprosarium 94, Creole contacts 64, Creoles in coastal zone 49, Creoles in mental hospital (all adults) 59, East Indians (descendents of immigrants from India and Pakistan) 21, Indonesians 25, Bush Negroes 70, and American Indians 26. The remarkable feature is the comparatively large percentages of positive reactions in Bush Negroes among whom leprosy is un-

common compared to that among the Creoles. Tuberculosis is not likely to be the cause as it is uncommon among the Bush Negroes who live at a long distance from the town.

In a paper entitled *Nephrotic Syndrome in Leprosy; Dysproteinaemia,* G. Tarabini-Castellani studies the blood protein in 10 nephrotic cases of lepromatous leprosy. In proportion to the advance of leprosy he found a decrease in the total proteins. The albumen fraction is always decreased, but if this loss is compensated by an increase of total proteins then function is maintained and the prognosis is not so bad. The alpha 1 globulin almost always increases, but irregularly, and the beta globulin always increases. The same blood protein picture is found in lepromatous cases without renal symptoms, and it is therefore concluded that it is not proteinuria which causes it, but leprosy.

B. Gozsy and L. Kátó write, in their series of studies on the effects of phagocytic stimulation, on the *Action of Chaulmoogra Derivatives on Endothelial Cells of Skin Vessels.* With a view to studying the effect of chaulmoogra oil on the cellular defence mechanism in leprosy the following experiments were carried out. Twelve different substances including histamine bihydrochlorate, chaulmoogra oil and 9 chaulmoogra derivatives were applied to the depilated abdomens of white mice. The histamin was applied in a 0.5 solution in 70 per cent ethyl alcohol, and the chaulmoogra and derivatives in linseed oil. Immediately after the application (to 4 mice each preparation) 0.5 cc. of india ink mixture was injected intravenously in the tail of each animal. The degree of phagocytic activity was assessed by the degree of pigmentation of the skin. This was read off after 2 and 24 hours against a control of linseed oil alone, degrees of pigmentation being marked from zero up to 4 plus. The chaulmoograte of sodium, magnesium and barium and the control gave negative results. The histamine salt gave 4 plus, as did chaulmoogra oil (20 per cent) and its various esters after 24 hours. Histamine, 20 per cent chaulmoogra and its 1 per cent benzyl ester gave 4 plus at the 2-hour reading. "This similarity of action of both histamine and chaulmoogra derivatives on the endothelial cells of skin vessels, and the fact that for both cases the induced phagocytosis could be inhibited by an antihistaminic, permits us to suppose that this action on the part of the chaulmoogra derivatives is brought about as a consequence of the liberation of histamine. However this hypothesis remains to be proved by direct quantitative methods."

The same authors also write on the *Action of Chaulmoogra Oil on the Reticuloendothelial System.* Following on the evidence in the

last-described experiments that chaulmoogra derivatives acting like histamine stimulate the activity of endothelial cells in the skin, a further trial was made to find out whether chaulmoogra derivatives also resembled histamine in slowing the disappearance from the body of india ink injected into the vein. Out of 250 albino rats 50 were injected with histamine subcutaneously, 50 with Benadril, and 50 on two occasions with chaulmoogra oil. India ink suspension was injected intravenously in the first 2 groups 30 minutes after the previous injection, and in the third 1 hour after the latter chaulmoogra injection. Controls consisted of another 100 rats which were given only the solvents previous to the india ink. The ink disappeared in the controls within 39 to 68 minutes. The disappearance was delayed in the antihistamine group and accelerated in the histamine and chaulmoogra groups. This gives further evidence that chaulmoogra acts in leprosy in stimulating the cellular defence mechanism of the host to increased activity.

G. L. Fite and H. W. Wade review the known facts about *Albert Neisser's participation in the discovery of Hansen's Bacillus and the establishing of it as the cause of the lesions of the disease of leprosy.* In 1874 Hansen observed and described the bacillus; but his observation was very defective and he was unable to convince others, including Danielssen his chief, as he had not at that time the technique and the stains necessary for showing the bacillus clearly. In 1879 Neisser went to Bergen and obtained material from Hansen and applied new methods of staining according to Koch's method, which showed up the bacilli clearly. Thus Neisser confirmed and expanded the work of Hansen. Meanwhile Hansen had also obtained the later staining methods from Koch, but was slower than Neisser in publishing the results. While Neisser was a bacteriologist, Hansel was a leprologist, and did far more for the campaign against leprosy than discovering the etiological agent.