REVIEWS

The International Journal of Leprosy. Vol. 9, No. 2, April-June, 1941. *A Field Study of Leprosy in Talisay, Cebu, Philippines,* by R. S. Guinto and J. N. Rodriguez.

This is a further survey of an area mainly engaged in agriculture. The number of persons examined was 10,598, or 99.3% of the whole population, among whom 143 living cases were known. The new cases found numbered 65 bringing up the rate per mille to 19.5, but only 11 of the new cases were bacteriologically positive. Of 31 paroled cases in the area 5 were found to have relapsed. The sea coast areas had much lower rates than the mountain and lowland groups. In age and sex distribution, the proportion of cases with a history of household exposure to infection the Talisay data showed no notable difference from those of Cordova.

Leprosy in the State of Maranhão, Brazil. By T. Pompeu Rossas.

An incomplete census for two-thirds of the population of this state revealed 1,000 cases of leprosy in its principal foci of the disease, and the total cases are estimated at 1,300, to which a further 50 per cent should be added, which brings the estimated rate per mille to 1.6. For their control the writer advises the enlargement of the Bomfim colony to provide for 900 cases, of which 780 will be open and 120 closed ones, many of whom require care on account of being crippled. The leprosy clinic at St. Louis should be prepared to treat the closed cases. Three trained physicians should be appointed to make domiciliary visits at least once a year to re-examine the domiciled cases under treatment and their contacts, and to verify new cases reported by private clinicians. Treatment posts with male nurses should be established in the principal foci. This economical plan should enable leprosy to be controlled in a relatively short period.

The Effects of Diphtheria Toxoid on Painful Enlarged Nerves in Leprosy. By D. R. Collier.

This note reports the relief of pain due to enlarged nerves in four patients, operations on whom had afforded only temporary relief on account of the formation of scar tissue. Many other cases are said to have benefited in the same way. The injections may be followed by temporary hot and itching sensation and increased pains in the hands and feet.

Histological Study of an Early Case of Leprosy in a Young Child of Leprous Parents. By J. O. Nolasco and C. B. Lara.

The child died of pneumococcal pneumonia at 17 months of age, and histological examination was made of the site of a lesion on the right knee which two months earlier had shown numerous lepra bacilli. A very young bacteriologically positive leproma was found with bacilli in the corresponding lymph node. It is believed to be the primary lesien.

The Vascular Lesions of Leprosy. By G. T. Fite.

This paper is based on a study of 77 cases and 10 autopsies, from which the following conclusions are reached. Some involvement of the blood vessels of cutaneous lesions was found in 32 out of 77 cases of all types. The bacilli were usually found in the lining endothelial cells, most commonly in the terminal loop of the extensive affection of the larger vessels results in a continuous intravenous auto-inoculation of lepra bacilli; thickening projecting into the lumen of both an artery and of a vein have been observed. Infection is believed to spread in the larger vessels through the vasa vasorum. Leprosy foci appear to originate in the perivascular lymph spaces around the arteries, but were not demonstrated in the lymphatic vessels.

Contributions a L'etude de la Lepre. 11. Inoculation du Bacille de Hansen au Singe. By R. Chaussinand.

The writer is in agreement with previous workers in finding that the injection of lepra bacilli from human lesions produces only temporary lesions, with spontaneous resolution, in the case of monkeys. With repeated such injections, after resolution of the first produced lesions, the local lesions reform and disappear again more rapidly than before, and they do not reappear after a fourth inoculation. This suggests a gradual development of immunity.

Pathogenicity of Acid-Fast Bacilli Isolated from Human Leprosy by Migone. By H. C. de Souza-Araujo.

Cultures of two strains of acid-fast bacilli isolated in Paraguay from leprosy patients have produced on inoculation into rats and mice typical granulomata similar to those of human leprosy; these differed from those of rat leprosy by being in the form of skin-muscle tumours. They were very rich in ' clusters or ' globies ' forms of the Hansen bacillus very seldom obtained in experiments with cultures.'

The International Journal of Leprosy. Vol. 9, No. 3, July-September, 1941. *Behaviour of Leprosy Bacilli in Complex Liquid Media with Highly Available Sources of Nutrient and Accessory Substances.* By John H. Hanks.

This is a laborious and highly technical attempt to cultivate the bacillus of human leprosy. As the results were once more negative it will suffice here to record that the most likely culture media were supplemented by a variety of substances, including products derived from acid-fast bacilli, and so likely to favour their growth. Moreover, liquid media were used which allowed of quantitative microscopical studies; these demonstrated that the leprosy bacilli did not multiply in any of the 109 nutritional combinations tested.

Limitations of the Diphtheria Toxoid Treatment of Leprosy. By J. Hugh McKean.

The writer records that in his earlier recorded work with Collier on this method of treatment its limitations were evident from the very beginning, for very wide variations were noted in response to treatment, especially in lepromatous cases. The best results were obtained in the more amenable bacillus free tuberculoid and early neural cases, but positive major tuberculoids and active minor tuberculoid cases failed to respond, and 3 of 21 early lepromatous ones have relapsed. Moreover, there is a tendency to relapse with failure of further treatment, and the gradual subsidence of active lesions after the toxoid injections is commonly accompanied by new activity in other parts of the body. Eighteen months' experience therefore has brought out the inequalities and limitations of the diphtheria toxoid method of treatment.

A Leprosy Survey of a Control Area—Santander, Cebu, Philippines. By R. S. Guinto and J. N. Rodriguez.

This survey was undertaken in an area in which only two cases of leprosy had been reported in thirty-two years, in contrast to the heavily infected municipalities of Cordova and Talisay. The examination of 98.6 per cent of 6,581 persons in this area revealed only two additional cases, both bacteriologically negative. The two earlier ones had been segregated at Culion. The area is sparsely populated and the disease had only spread in the originally infected household, and is now considered to have died out. Although Santander is much more isolated than Cordova and Talisay it is difficult to find other differences likely materially to have affected the incidence of leprosy, except less overcrowding of the house-

holds and less of the joint-family system leading to close association of groups of families affording greater opportunities for infection.

Traitement de la Lepre Humaine par le "Krabao" (*Hydnocarpus Anthelmintica*). By R. Chaussinand and J. Guillerm.

This is a report on the treatment of 375 cases of leprosy by various methods of administering preparations from H. anthelmintica, known in Indo-China as Krabao. Out-patients were treated at dispensaries by the oral administration of 6 tablets thrice daily of 25 cgm. of the sodium soap made from the oil, which was well tolerated, and can be continued for years with occasional intervals of a few weeks (as formerly used by Rogers in Calcutta). In early cases it proved both effective and popular. In more advanced cases it is advisable to give injections by various routes of undistilled and unneutralized ethyl esters prepared by cold extraction of the oil. Remarkable results have thus been obtained in out-patients at little cost. The segregation laws of Cochin-China are not rigidly enforced, and have not produced appreciable reduction of the disease on account of hiding of the cases, with harmful effects on dispensary treatment and prophylaxis. The authors therefore advise the extension of dispensary treatment, combined with compulsory segregation of infective patients who refuse regular treatment. (This is essentially the plan the reviewer recommended over two decades ago.)

Leprosy in India. Vol. XIII, No 3, July 1941.

The first three articles in this issue record further work at the Lepromin test at the Calcutta School of Tropical Medicine, which can be considered together. They are entitled: Preparation and standardisation of Lepromin (Dharmendra); The early reaction to lepromin, its nature and its relation to the classical Mitsuda reaction (J. Lowe and Dharmendra), and The active principle of lepromin is a protein antigen of the bacillus (Dharmendra).

1. This short note describes the separation of the lepra bacilli from the autoclaved tissues of human leprosy nodules by repeatedly centrifuging the supernatant fluid after settlement following earlier centrifuging. The bacilli are then counted in a small portion and a dilution made to contain 15 million bacilli per c.c.; 0.1 c.c. of this constitutes the dose for injection.

2. This paper deals with the relation between early and late reactions to injected lepromin. They confirmed Fernandez in his

finding that cases giving typical late reactions also give slighter early ones, for in 300 tests in only 6.7 per cent did the two differ. On breaking down the lepra bacilli the early reaction was accelerated from 48 to 24 hours, and the late one considerably reduced in its extent. They therefore consider that only one antigen is concerned in both reactions—not two as Fernandez suggested—and it is set free by breaking up the bacilli.

3. This paper deals with the fractionation of dried leprosy bacilli separated as described above from leprous tissues. The author comes to the conclusion that only the protein element, and not the lipoid one, gives early reactions, and no fraction gives late ones. Early reactions with the ground up bacilliary material in 90 cases gave agreement in 88.8 per cent with the late reactions obtained with ordinary lepromin. With purified antigen the early reactions are easy to interpret without the long wait for late reactions, often with undesirable effects, such as temporary ulceration.

Investigations on the Biochemistry of Leprosy. (C. S. Venkatasubramania)

The author reports that both calcium and prosphorus of the blood are within normal limits in leprosy patients, but phosphatase shows a slight increase, probably due to the bone changes. The Editor points out that the phosphatase increase is greatest on the average in the nerve cases, so may be due to the malnutrition more commonly seen in that type.