

mentally, but recovered, the epidemic did not abate until the arrival of the cold weather.

During the whole of this dreadful period Colonel Bayly carried out his duties as a field officer of the garrison, visiting guards and hospitals, though the latter were regarded as veritable death traps.

At length, at the age of 50, he retired, after thirty-four years' service with the 12th Regiment, to enjoy a well-earned rest in the evening of his life.

His diary, recording as it does on every page tales of endurance and devotion to duty, is a wonderful illustration of the spirit which has permeated the British Army, and has enabled it to accomplish tasks which at first sight have appeared beyond the power of men.

[The Editors are indebted to Major H. C. Hildreth, D.S.O., R.A.M.C., for the loan of the Diary from which this abstract is compiled.]

Current Literature.

Plurality of Syphilitic Virus. By C. Levaditi and A. Marie. (*Annales de l'Institut Pasteur*, xxxvii, No. 2, February, 1923, p. 189.)—The authors maintain the thesis that the para-syphilitic manifestations (tabes and general paralysis) are due to a distinct variety of *Treponema pallidum*, but do not offer evidence as to whether differentiation is acquired subsequent to infection or whether it is pre-existent. Comparative inoculation and immunity experiments on rabbits, monkeys, and men are described using neurotropic and dermatropic strains of treponema as well as *Spirochaeta cuniculi*, the organism found in a disease occurring naturally in rabbits and closely resembling primary syphilis in its manifestations and means of transmission. All three organisms were found to be pathogenic for rabbits when inoculated on the mucous membrane, but they showed definite and consistent differences in the nature of the lesions produced. The neurotropic treponema (obtained from the brain of a case of G.P.I.) and *S. cuniculi* were found to be non-pathogenic for monkeys and man when inoculated cutaneously by scarification. But the dermatropic treponema, even after it had been carried through a series of rabbits for fourteen years, was still pathogenic for both men and monkeys but showed greatly reduced virulence and produced no secondary or tertiary manifestations. Immunity experiments with rabbits showed that each organism produced immunity against reinfection with the same organism but no cross-immunity was produced between any of the three.

The Treatment of Sleeping Sickness by Atoxyl. By Ouzilleau and Lefrou. (*Annales de l'Institut Pasteur*, xxxvii, No. 3, March, 1923, p. 275.)

Attempts at Treatment of Sleeping Sickness in the Second Stage. By Lefrou. (*Ibid.*, p. 294).—In the first stage of the disease three methods of dosage were tried :—

(1) Small doses of 0·01 gramme per kilo of body weight with a maximum of 0·5 gramme at intervals of five to seven days.

(2) Medium doses of up to 0·75 gramme at intervals of fourteen days.

(3) Large doses of up to 1·25 gramme at intervals of fourteen days.

In all three methods tartar emetic was given in doses of 0·05 to 0·1 gramme with, or alternately with, the atoxyl.

The results with the first two methods were unsatisfactory, 39 cases treated with small doses all relapsing. Among 44 cases treated with medium doses, 3 had no relapse up to two years after ceasing treatment, and 14 relapsed very shortly after treatment was stopped. The remaining twenty-seven were put on the third method of treatment without waiting for relapse. The cases treated by the third method comprise 102 who had already been treated by small or medium doses, and eighty-four who had had no previous treatment. In these two groups there were 13 and 5 relapses respectively during a period of observation of from seven to twelve months in the case of 22 of them and twelve to seventeen months in the remainder.

The authors deny that these large doses are attended with any danger but advise giving Europeans a small trial dose to ascertain whether there is any idiosyncrasy.

Owing to the small margin between the dose toxic to the trypanosome and that which is toxic to a damaged central nervous system, the treatment of the second stage by atoxyl, neosalvarsan, or other form of arsenic tried was far from satisfactory and the most that could be hoped for was to keep the peripheral circulation free from trypanosomes by courses of large doses alternating with periods of rest. By this means a progressive reduction in the lymphocytes of the cerebrospinal fluid was obtained, a fall occurring during treatment followed by a slight rise in the period of rest. In the second stage of the disease doses of more than 1·0 gramme were found to be attended with danger.

A Preliminary Report on the use of Creosote Oil as a Mosquito Repellent. By C. P. Coogle. (*Public Health Reports, U.S.A.*, xxxviii, No. 10, March 9, 1923, p. 443).—Observations made indicate that creosote oil, when applied to the walls and ceilings of certain houses in the quantity of one gallon to 420 square feet, will noticeably repel anopheline mosquitoes. The duration of its effectiveness is yet to be determined.

Observations made of certain of the creosoted houses ten weeks after the creosote had been applied seem to indicate that the creosote oil was still effective.

It appears that creosote oil as a mosquito repellent is particularly

applicable to and desirable for use in houses of poor construction, where screening and other anti-mosquito measures cannot be effectively employed.

Apparently the employment of creosote oil in the quantity and manner indicated above is perfectly safe. No ill effects were noted upon any of those who slept in the rooms subsequent to the application.

One observation seems to indicate that creosote may be used to prevent mosquitoes from laying eggs in water barrels. A water barrel that had formerly contained creosote was on several visits found to be free from larvæ although they were very abundant in two adjoining barrels. There was no film on the water at the time but a faint odour of creosote was perceptible. The occupant of the house, a negro woman, stated that there had never been any wiggletails in the third barrel since she brought it home four years ago when it had been given her by a man who had used it for creosote.

Hookworm Disease among Persons who were cured five years ago. By D. L. Sisco (*Journ. Amer. Med. Assoc.*, vol. lxxx, No. 7, February 17, 1923, p. 451).

Carbon Tetrachlorid in the Treatment of Hookworm Disease. By S. M. Lambert (*ibid.*, vol. lxxx, No. 8, February 24, 1923, p. 526).—Sisco describes in an area of the Island of Antigua, British West Indies, a resurvey of the treated population. This showed in effect that all the people who had been freed from hookworms five years previously were reinfected to the same degree as they were at the time of that campaign. Therefore (1) "No treatment work should be started in an area which has not been previously sanitized. (2) The construction of latrines is only the beginning of sanitation. (3) Treatment work should not be discontinued until a permanent organization competent to control operations, and to maintain public health education, sanitation and treatment is functioning."

Lambert's paper presents rather full evidence drawn from 50,000 treatments with carbon tetrachlorid. This drug has shown itself to be the best vermifuge for the treatment of hookworm disease where *Necator americanus* predominates. It is palatable, requires no preparation of the patient, and when pure is apparently not toxic, all of which features are of advantage in a popular campaign; 42,000 persons were treated without morbidity or mortality from the drug. Among 8,000 cases subsequently treated with supposedly pure carbon tetrachlorid three fatalities occurred. Chemical examination, however, disclosed that this particular lot of the drug was far from pure. It is important, therefore, to make sure that a pure supply is used. It is possible that the dosage employed, viz., three minims for each year of age, with an adult dose of forty-five to sixty minims, is larger than is desirable. Where there is a heavy infection of *ascaris*, the results are improved by the addition of oil of chenopodium.

Method of Triple Centrifugation of Blood. By M. Blanchard and G. Lefrou. *C. R. Acad. Sci.*, October 9, 1922, vol. clxxix, No. 15, pp. 602-604.—Blanchard and Lefrou whilst engaged on their work on hæmorrhagic jaundice and relapsing fever had occasion to utilize the method of triple centrifugation of the blood—a method in common use at Brazzaville for the diagnosis of sleeping sickness—and an opportunity arose to examine the blood of Europeans suffering from blackwater fever by the same method.

The exact technique used by the authors is as follows:—

About ten cubic centimetres of venous blood is collected into a centrifuge tube containing one cubic centimetre of twenty per cent sodium citrate solution sterilized in an autoclave, and the mixture well shaken to prevent coagulation.

The blood is then subjected to three successive centrifugations, each of a duration of about ten minutes, in a hand centrifuge at a speed of 1,500 revolutions—about sixty-five turns of the handle per minute.

(1) The first results in the separation from the plasma of the greater portion of the red cells. The centrifuge should be stopped when the liquid is separated into two distinct layers—the lower red consisting of erythrocytes and the other amber consisting of plasma.

(2) Withdraw the supernatant layer by means of a pipette and teat and transfer to a second tube and centrifuge until there is a distinct red deposit: this consists of red cells, leucocytes and platelets.

(3) Decant, by pouring, the supernatant fluid into a third tube and centrifuge until a slight white deposit is obtained: this deposit, if the operations have been properly performed, consists only of platelets and an occasional red cell. It contains the spirochætes.

This deposit is removed by a fine pipette, the tube being inverted and almost vertical, so as to have as little dilution as possible, and is examined either fresh by means of the ultramicroscope or after staining.

By means of this technique the authors succeeded in finding spirochætes in the blood of two cases of blackwater fever. In the first case—a Swiss who had lived in the Congo for five years—the organisms were found on the fourth day of the disease, and in the second case—a Frenchman who had lived in the Congo since 1919—the spirochætes were found also on the fourth day.

The Heat Resistance of *Bacillus botulinus* Spores. *Abstracts of Bacteriology*, vol. vii., January, 1923, No. 1, p. 16. By J. Russell Esty.—The heat resistance of 112 strains of *B. botulinus* including 81 Type A, 30 Type B and 1 non-toxic strain varies from 3 to 75 minutes at 105° C. The spores are produced in pea-peptic-digest pH 8.0 and heated in a phosphate solution of approximately pH 7.0. The strains originated from twenty-nine outbreaks of human botulism and sixteen outbreaks of animal botulism, in addition to numerous other sources, such as suspected canned foods, raw plant products, soil specimens and material from forage poisoning cases.

The heat resistance of eighty-one Type A strains varies 3 to 75 minutes at 105° C. with an average resistance of 41.1 minutes. The resistance of thirty Type B strains varies from 3 to 60 minutes at the same temperature with an average of 23.8 minutes. The resistance of one non-toxic strain is thirty minutes.

The maximum heat resistance of *B. botulinus* spores produced under optimum conditions of growth is 330 minutes at 100° C.; 110 at 105° C.; 33 at 110° C.; 11 at 115° C. and 4 at 120° C. when heated in a phosphate solution of pH 7.0. These figures represent the time in minutes at which no spores have survived. The longest survival time at the same temperatures and under identical conditions is as follows: 320, 100, 30, 10 and 4 minutes respectively.

Spores of *B. botulinus* are more heat-resistant than those of the other anaerobes thus far tested.

The heat resistance of different strains of *B. botulinus* varies irrespective of the numbers of spores produced in the same medium. Few spores of certain strains may be far more heat-resistant than large numbers of other strains.

The heat-resistance of the same strain is markedly influenced by the numbers of spores heated. The larger the number present in a suspension, the greater the resistance.—*Author's abstract.*

Reviews.

TRANSLATION OF SELECTED PASSAGES FROM DE L'AUSCULTATION MEDIATE. First Edition. By R. Theophile H. Laennec, with a Biography by Sir William Hale-White. London: John Bale, Sons and Danielsson. Pp. ix and 193. 12s. 6d. net.

"In this astonishing book there occur perfect, precise and original descriptions of clinical symptoms and post-mortem appearances, neither too long nor too short, for the most part as true now as on the day they were written." A perusal of the excellent biography leaves the reader still more astonished at the achievements of this wonderful man. Handicapped by wretched health, and suffering from asthma, insomnia, neurasthenia, and later phthisis, plagued and harassed by family troubles, Laennec completed labours of almost incredible magnitude. He invented the stethoscope and established the art of auscultation of the heart and lungs. Tubercle he showed to be a new formation, and demonstrated the tuberculous nature of phthisis. He discovered the parasitic origin of hydatids. His studies on morbid anatomy are too numerous to mention, and his fame as a teacher attracted students from all over the world. He studied Greek to read Hippocrates the better, and often spoke in Latin for the benefit of those who could not understand French. Amidst his

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