



SATURDAY, APRIL 25, 1925.

CONTENTS.

	PAGE
Health in the Tropics	593
Tropical Timbers. By A. L. Howard	595
Foundations of the Theory of Optical Instruments. By Dr. L. C. Martin	597
Medieval Science. By E. J. Holmyard	599
Our Bookshelf	600
Letters to the Editor :	
Permo-Carboniferous Glaciation and the Wegener Hypothesis.—Prof. A. P. Coleman, F.R.S. ; Prof. J. W. Gregory, F.R.S.	602
International Co-operation in Phenological Research. —J. Edmund Clark	602
Depth-recording with Plankton-nets.—F. S. Russell	603
Spectroscopic Evidence of J-Transformation of X-rays.—Dr. S. R. Khastgir and W. H. Watson	604
Acidity produced in Salt Solutions by Sphagnum.— Dr. Macgregor Skene and Gladys L. Stuart	605
Three Cases of Abnormal Anterior Abdominal Veins in the Frog.—Dr. Nellie B. Eales	606
The Life-History of Amoeba.—Dr. Monica Taylor	606
Total Intensity of Scattered X-radiation.—O. K. DeFoe and W. W. Nipper	607
The Auroral Green Line.—Prof. J. C. McLennan, F.R.S.	607
The Mortality of Plaice.—Dr. William Wallace	607
Robert Browning as an Exponent of Research.— Prof. W. R. Whitney	607
Physiology and "Vital Force." By Prof. Fraser Harris	608
The German Museum of Science and Technology Obituary :— Dr. Carl Ulrich. By Dr. Robert W. Lawson	612
Current Topics and Events	613
Our Astronomical Column	616
Research Items	617
The International Geographical Congress	620
The Preservation of Food	621
Navigation and Fishing on the Ganges. By Dr. Henry Balfour, F.R.S.	622
Synthetic Methyl Alcohol	622
University and Educational Intelligence	623
Early Science at Oxford	624
Societies and Academies	624
Official Publications Received	628
Diary of Societies	628
Recent Scientific and Technical Books	Supp. v

Health in the Tropics.

THE medical conference which was held in the West Indies during last summer was probably unique in the history of medical science in that it was organised by a purely commercial company. The delegates, amongst whom were many distinguished men, were the guests of the United Fruit Company, and it is a remarkable fact that a wealthy commercial undertaking, having its offices in New York, should have a Medical Department, and that its directors should accept the advice of the general manager of that Department to issue invitations to laboratory workers and clinicians belonging to many nations to attend, as the guests of the Company, a conference to be held in a colony of the British Empire situate in the West Indies.

The particular conference was specially charged with showing to the guests what the Company is doing to maintain the health of its employees in tropical America and with obtaining, by discussion, suggestions for still further improvement of the conditions of life. The lesson is of supreme scientific importance, and is one which should be learned by all those, whether of British or any other nationality, who are engaged in commercial enterprise in tropical lands. The United Fruit Company has realised that sanitation pays and has acted accordingly. It has had the will to do the things that are necessary and has recognised the fact that what cannot be afforded is to leave them undone.

Scientific investigation has revealed the method of spread of practically all the diseases which are liable to afflict the dweller in the tropics, and the means of controlling these diseases are well known. Yet such is the scepticism or lethargy of those in command that in many cases they refuse to recognise the fact that sanitation is a commercial proposition repaying all the trouble taken in hard cash, which is the ultimate aim of all business undertakings. It is to be hoped that the demonstration given by the United Fruit Company will be thoroughly appreciated and, what is more important, acted upon.

One of the principal topics of discussion at the conference was the possibility of the white man becoming an inhabitant of the tropics. It is often assumed that the wonderful advances in tropical medicine will make the tropics a suitable home for the white man, and that in days to come the tropics will displace the temperate zones as the centres of activities of the world. This appears to be the view of the majority of those present at the conference. They believe that the attainment of normal longevity is not difficult provided that industrious habits are maintained, restraint as regards indulgence in intoxicating liquors is practised, and venereal disease and parasitic infections—especially hookworm and malaria—are avoided. Sir

Editorial and Publishing Offices :

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.

Advertisements and business letters to the Publishers.

Telephone Number: GERRARD 8830.

Telegraphic Address: PHUSIS, WESTRAND, LONDON.

NO. 2895, VOL. 115]

James Fowler¹ is convinced that even if these risks are met, over and above them all there is something which cannot be avoided. The crux of the whole problem appears to him to be the children, and he claims that if the Englishman is to become as much at home in the tropics as he is in England, he must be able to rear his family there. If he cannot do this he will certainly remain, as he now is, only a migrant.

Whichever of these two opposed views is correct, it still remains a fact that, by attending to sanitation and preventive medicine, a great deal can be done to diminish the sick rate amongst white men in the tropics. Sir James Fowler points out that as regards the general sanitation of Jamaica, the municipal authorities stand condemned on every count, and should be replaced by an administration armed with powers adequate to the cleansing of such an Augean stable. In contrast, the farms of the United Fruit Company are described as sanitary oases in an unsanitary desert. The Company owns the only possible hotels in Jamaica. When it takes over an estate, its first procedure is to build a hospital, to erect mosquito-proof workmen's dwellings and farm buildings, to instal all necessary sanitary appliances and to establish a satisfactory water supply, so that everything required to protect the health of employees is ready on their arrival.

The report of the Medical Department of the Company for 1923 consists of 180 pages, and shows that there is a staff of 50 doctors, 43 registered nurses, and 442 workmen. Nearly every well-known university and medical college in the United States is represented among the personnel. In addition to the establishment of a highly equipped medical organisation, the Company has built churches and schools, has erected club-houses and amusement halls, and has provided athletic grounds, all of which contribute very largely to the creation of an atmosphere of content, without which the mental depression noted above creeps in and so lowers vitality that inevitable sickness results.

One of the diseases which requires constant vigilance in tropical America is yellow fever. Thanks to the investigations of the American Commission in 1900, it is known that the disease is carried by the black and white mosquito *Stegomyia fasciata*. Noguchi has isolated from cases of the disease a spirochæte which he has named *Leptospira icteroides*. It has been recovered from cases in several distinct outbreaks of the disease, but, though Noguchi claims that in animals the organism reproduces the disease, there are some who doubt whether it is really the actual cause of yellow fever. Agramonte, one of the original members of the 1900 Commission, was present at the conference.

He claimed that the only conclusive proof would be the reproduction of yellow fever in human beings by inoculation of a pure culture of the organism. He threw down the challenge to Noguchi and offered to produce the necessary volunteers. If the organism should prove not to be the cause of yellow fever, then there would be little argument for employing the serum and vaccine which are produced from it in the treatment of the disease.

The subject of yellow fever leads to Panama, for, as is well known, it was only as a result of the control of mosquitoes, the carriers of malaria and yellow fever, as organised by General Gorgas, that the construction of the canal became a possibility. Here again is the same object-lesson—strict attention to the protection of employees from tropical diseases alone rendered possible this great achievement. The work accomplished, the question arose as to whether there was justification for the enormous expenditure of money which the maintenance of the sanitary condition involved. In June 1921 there arrived on the Isthmus a special Panama Canal Commission appointed by the Secretary of War. It consisted of a Brigadier-General of the Army, a Captain of the Navy, and two business men. They recommended that the amounts expended for sanitation in the Canal Zone be greatly reduced, and if, as a result, the sick and death rate from malaria rises above the average in twenty of the largest cities of the United States, the sanitary precautions be increased. This recommendation was not accepted by the Secretary of War, but nevertheless attempts were made to reduce expenditure. The reductions chiefly concerned Silver City, and the result was that in 1922 there was more than five and one-half times the usual incidence of malaria.

Another danger arises from the settlers, those discharged labourers who have been given a portion of land to cultivate. The result of this policy, again, has been a large increase in the number of cases of malaria among non-employees who are widely scattered over the available parts of the Zone. It is estimated that 650 families are now living on the land in this way. This population is difficult to control, and is liable to form a reservoir of malarial infection which will become a danger to those whose work requires them to be exposed at night in unsanitated areas. On the other hand, it is claimed that these settlers bring advantages in the increase and cheapening of food. It is evident that in such an area as the Panama Canal Zone and in the thousands of similar areas in all parts of the tropical world, the health of employees can only be maintained by the strictest vigilance, and the necessary expenditure has been shown by the United Fruit Company to be an investment which will bear the closest scrutiny.

¹ "An Impression of Jamaica and the Panama Canal Zone." By Sir James K. Fowler. Pp. 60. (London: Eyre and Spottiswoode, Ltd., 1924.) 2s.