

The Calcutta School of Tropical Medicine.

THE annual report (1932) of the above institution and the Carmichael Hospital for Tropical Diseases which has just been issued is a highly valuable document representing the progress of a large section of medical research in India. The report of the Director (Lt.-Col. H. W. Acton) reviews, in broad outline, the expansions in the different departments, new researches undertaken and the more important results obtained. Among the expansions, mention should be made of the opening of the All-India Institute of Hygiene and Public Health under the direction of Lt.-Col. A. D. Stewart. It is also refreshing to note that although the year was one of all-round financial distress, the different researches were not cramped for want of funds. In addition to the India Government and the Government of Bengal, the Indian Research Fund Association, the Indian Tea Association, the Indian Jute Mills Association, the Calcutta Corporation and other institutions, as also a few private individuals, contributed generously and helped the School to tide over a difficult period.

The report of the Director is followed by more detailed contributions from the heads of the departments. The Superintendent of the Carmichael Hospital records some peculiar clinical cases that came to his notice. The Professor of Tropical Medicine (Dr. S. P. Bhattacharjee) and his staff paid special attention to problems relating to tropical splenomegaly and cirrhosis of the liver in infants. The department of Bacteriology and Pathology under Lt.-Col. H. W. Acton devoted considerable attention to the origin and nature of phagedenic ulcers (Naga Sore), diagnosis and treatment of human carriers of dysentery, correlation of bacteriological examination of stools with their clinical significance, Vitamin B content of food in relation to the incidence of epidemic dropsy and a number of skin diseases. A cheap and efficient nutrient medium using the papain digest of the green mung dal (*Phaseolus mungo*) in place of peptone water and meat broth has been developed. The work of the department of Protozoology under Lt.-Col. R. Knowles included routine work relating to the examination of pathological products as also to the extension of the work on (a) transmission of the malaria in different areas, and (b) the human and the monkey malaria by numerative and cultural methods. Atebrin, the newly introduced synthetic preparation, has been tried on all the three species of human malaria with highly satisfactory results.

In the department of Serology and Immunology a number of laboratory tests for clinical purposes were standardised under the direction of Lt.-Col. R. B. Lloyd.

The report of the Professor of Pharmacology (Lt.-Col. R. N. Chopra) presents several interesting features. The work on snake venoms has shown that there is no justification for their use as either cardiac stimulants or for the treatment of epilepsy, insanity, asthma and such like diseases for which they are recommended in Indian Medicine. Studies on musk have shown that its fame as a cardiac tonic is not fully justified and that the therapeutic uses of that drug as cardiac and respiratory stimulant have generally been

over-rated. An investigation into the absorption and therapeutic effects of Makaradhwaja have shown that its tonic properties correspond to those of minute quantities of mercuric chloride: it would appear therefore that it is an insoluble preparation of mercuric sulphide which is acted on by the gastro-intestinal juices so that minute quantities of mercury pass into the ionic condition to produce the characteristic tonic effects. These observations do not, however, fully dispose of the fact that the use of even highly purified mercuric sulphide in place of Makaradhwaja often leads to mercurial poisoning. Work on various indigenous drugs as also chemotherapeutic studies and biological assays on a number of substances sent from various parts of the country have been reported.

The department of Entomology (Dr. C. Strickland) reports several studies on malarial mosquitoes—particularly *A. stephensi* as also other disease-carrying insects. The report of the Professor of Public Health Laboratory Practice (Dr. B. B. Brahmachari) contains a few interesting features among which mention should be made of studies in the Vitamin A contents and nutritive values of ghee and different vegetable oils. The researches on ghee would appear to require more extended observations with specimens from different sources before any generalisations could be made. The proposed survey of the faecal flora is interesting but, in view of the inadequacy of the present-day methods of isolating and studying different organisms, it is hardly likely that any new improvements in the detection of sewage pollution of water could be effected.

The recent success of Napier and his co-workers in the transmission of Kala-Azar to Hamsters through the bite of sand flies has placed the inquiry on a sounder basis, but further work is needed to elucidate certain obscure aspects of that disease. Of special interest is the fact that the suspected carrier, *Phlebotomus argentipes* is entirely absent from at least one heavily infected area in Madras and that in the Rameswaram island where a great deal of anti-malarial work has been carried out, Kala-Azar has almost entirely disappeared.

The Professor of Chemistry (Dr. S. Ghosh) reports on his works on indigenous drugs and Vitamin B assay of Indian rice. In the latter case close correlation between results obtained by Spruyt's colorimetric method and feeding experiments with birds was observed.

In the Hookworm Research Department Dr. Maplestone and his associates found that the newly introduced anthelmintic hexylresorcinol was not so efficient as other drugs already in use: moreover, it appeared to be highly toxic under certain conditions of administration.

The enquiry of bowel diseases devoted considerable attention to the characterisation of different types of cholera phages. Some preliminary work on the nature of cholera toxin showed that it contains some compound with a free cyanogen radical. There is a suggestion that the poisoning of the human system is due to the absorption of hydrocyanic acid or one of its

related compounds together with other toxic amines.

The Leprosy Department under Dr. Muir extended its observations on the pathology and bacteriology of that disease. The intradermal method of giving hydracarpous injections has been found to be more effective than the intramuscular or the subcutaneous treatments. The lack of correlation between the lesions and the number of *M. lepræ* was the subject of careful research and the evidence so far obtained suggests that there is a minute form of the parasite which has not yet been recognized microscopically and that this germ is the usual cause of at least early nerve lesions. The nature of this virus and the possibility of its being filtrable are discussed, analogy being drawn to a filtrable virus in rat leprosy and tuberculosis stated to have been demonstrated by some workers. Although claims have been made by workers in other countries that the leprosy organism has been isolated, yet repetition of their experiments has invariably led to negative results. The department has also conducted extensive propaganda and issued the quarterly Journal, *Leprosy in India*.

In the Diabetes Research Department, Dr. J. P. Bose carried out studies on the distribution of sugar in the blood of diabetic and non-diabetic subjects as the result of which it has been concluded that (1) in normal healthy subjects the plasmic sugar is only slightly higher than the corpuscular sugar, while in diabetic subjects the plasmic sugar is always much higher than corpuscular sugar, and (2) the high plasma and the low corpuscular sugar is due to the inability of the corpuscles to take in sugar from the surrounding plasma.

The Filariasis Research Department under

Dr. S. Sundar Rao investigated problems relating to (a) longevity and (b) different modes of infection with *Wuchereria bancrofti*. Several methods of treating the infection with compounds of copper, bismuth, tin, zinc and lead were tried but without success.

The report of Respiration Diseases inquiry (Lt.-Col. Acton) relates to a survey of different diseases affecting persons engaged on tea gardens or jute mills. Since a large number of mill hands suffer from asthma, considerable attention was directed to the early diagnosis of the different types of that disease. In the tea gardens, pneumonia is responsible for many deaths and a study of the nature of the organisms has shown that it belongs mostly to Type IV. The observation is now being extended with a view to producing a correct type of anti-serum for general use in India.

Radiology and Electric-therapeutic Department (Lt.-Col. J. A. Shorten) records several interesting clinical observations. The Superintendent of the Pasteur Institute (Dr. M. J. Nicholas) reports a number of cases of treatment for dog bite though for some unknown reason, many of the patients did not attend the full course of treatment. The general results show, all the same, a high percentage of success as a result of the anti-rabies treatment, the failures being, on an average, only 0.38 per cent of the total number of cases treated. The appendices include a report of the Secretary to the Endowment Fund of the Calcutta School of Tropical Medicine and lists of articles and books published or read by members of the staff during the year under report. Publications relating to the various subjects under review have been issued frequently chiefly through the columns of *Indian Journal of Medical Research* or the *Indian Medical Gazette*.

The U. P. Academy of Sciences.

THE *Bulletin of the U. P. Academy of Sciences*, Vol. 2, No. 4, May 1933, contains a report of the Proceedings of the Annual Meeting of the Academy held in the Vizianagaram Hall, Muir College Buildings, Allahabad, on Friday, Jan. 13, 1933. The Hon'ble Mr. J. P. Srivastava, M.Sc., (Tech.), Education Minister to the Government of the United Provinces, presided.

The Secretary's Report showed that the Academy had 102 Members on its roll of whom 19 were non-resident. Pandit Madan Mohan Malaviya was elected Honorary Fellow of the Academy in recognition of his eminent services in the cause of science and education in the Provinces. Dr. R. Samuël, R. F. Hunter and Dr. P. L. Srivastava were elected Fellows of the Academy. During the year, 43 papers were read before the Academy and its Bulletin received 53 Journals in exchange.

Dr. M. N. Saha, the President of the Academy, delivered his Presidential Address on the "Present Crisis in Dynamics". After reading a message from H. E. Sir Malcolm Hailey, Governor of the U. P., conveying his well wishes to the Academy, Dr. Saha referred briefly to important events of the Academy for the year and then proceeded to the main text of his address.

The Science of Physics is now passing through a

great crisis. To be able to appreciate the present crisis, it would be interesting to recapitulate that the sciences created or inherited by the Greek and Hindu savants were all static, viz., Geometry, Algebra, Trigonometry and Arithmetic; they had no science to describe motion. Although they realized and saw around them Nature full of motion, the difficulties in arriving at its correct principles were almost insuperable. It was Galileo who, hemmed in and persecuted by an intolerant clergy, formulated his famous laws of motion. He gave a mathematical expression to 'mass', 'force', 'acceleration' and 'velocity'. But while in the sphere of physics and astronomy, these laws met with almost unlimited success, metaphysicians like Berkley and Hume objected strongly to Galileo's picture and propounded that the human mind must be taken into consideration in any world picture, a fact that Galileo's laws overlooked. To-day Berkley's ideas are found to be more correct than they appeared at his time. For 350 years the science of dynamics held supreme, for it provided an explanation of all known forms of motion and other physical phenomena. But when at the end of the last century it was found that electricity was more fundamental than matter, the first rift in the lute appeared.