

of light weight and low cost are against accuracy, is very difficult. Further investigations being carried out by the World Meteorological Organization will, it is hoped, lead to greater uniformity.

High-Voltage Impulse Testing

THE striking of overhead electric power transmission lines by lightning can give rise to impulse voltages far greater than power frequency over-voltages, to which the insulation of equipment associated with the overhead lines is subjected. It is therefore most important to include impulse testing in the testing of high-voltage equipment. This is emphasized in "High Voltage Impulse Testing" (National Physical Laboratory. Notes on Applied Science No. 17. Pp. iv+10. (London: H.M. Stationery Office, 1956.) 1s. 6d. net), where it is pointed out that a great deal of experience in such techniques has been gained during the past twenty years. In this booklet the effects of lightning strokes on transmission systems are briefly described, and the production of test impulses in the laboratory, the creation of standard wave shapes and the methods of testing insulators, protective gaps, cables, transformers and capacitors are described.

Optical Design with Digital Computers

SOME ten years ago, when digital computers of the modern kind were first being designed, it was foreseen that they would have an important part to play in such subjects as the design of optical systems. For a variety of reasons, people were more anxious to exploit the earlier machines in basic scientific research; but the success of the symposium on optical design with digital computers held at the Imperial College of Science and Technology during June 5-7, 1956, is an illustration of the degree of attention now being given to this subject in optical departments and firms. The report of the symposium (Proceedings of a Symposium on Optical Design with Digital Computers. Pp. viii+93. London: Imperial College, 1956. 10s.) contains fairly detailed summaries of the papers presented and of the discussions which took place. It will be of interest primarily to those engaged in optical design. The symposium opened with introductory lectures on methods of optical design and on digital computers. Later, lectures were given on ray tracing, first-order design of optical systems, and on problems associated with the assessment of image quality and the general performance of lenses.

Theoretical and Applied Mechanics in India

THE Proceedings of the first Congress of Theoretical and Applied Mechanics organized by the Indian Society of Theoretical and Applied Mechanics (which was held during November 1-2, 1955, and not 1956, as stated on the title page) cover five sections, of which the first was devoted to elasticity, plasticity, rheology; the second to fluid mechanics; the third to the mechanics of solids; the fourth to statistical mechanics, thermodynamics and heat transfer; and the fifth to mathematics of physics, statistics and computation. The organizing secretary, both for the first Congress in 1955 and the second, which was held during October 1956, was Prof. B. R. Seth, of Kharagpur. Among the many interesting papers contained in the Proceedings of the first Congress there is one by V. M. Ghatage on ring aerofoils and their possible use, which is mentioned here in case it may not come to the notice of aeronautical engineers.

The volume is well printed and will, we hope, be the forerunner of a number of volumes containing the Proceedings of later Congresses at Kharagpur.

Postgraduate Grants

FURTHER details of the revised arrangements for postgraduate studentships in science and technology, first announced in November 1956, are given in a new edition of "Notes on D.S.I.R. Grants for Graduate Students and Research Workers" (pp. 20. London: H.M. Stationery Office, 1957. 1s. 3d. net). Provided suitable candidates are forthcoming, the Department will award in 1957 about 700 research studentships (formerly known as maintenance allowances) and about 200 advanced course studentships, a new type of award. The values of the studentships will vary with circumstances: a student at Oxford or Cambridge, living in college, hostel or lodgings, may receive up to £380 a year in addition to his fees; a student outside London, living with his parents, may receive up to £245 a year and his fees. Some other expenses are also paid. Details are also given of the Department's grants for special researches and for research fellowships, both of which have been extended in scope.

The Anaplasmas, Babesias and Toxoplasma

THE Section of Biology of the New York Academy of Sciences held a conference in November 1955 on some protozoal diseases of man and animals, including diseases caused by Protozoa belonging to the genera *Anaplasma*, *Babesia* and *Toxoplasma*, and these papers are now published (*Ann. New York Acad. Sci.*, 64, 25-277; 1956). Part 1 deals with anaplasmosis, and consists of papers by H. Schmidt on the manifestations and diagnosis of anaplasmosis, by D. W. Gates and T. O. Roby on the status of the complement-fixation test used for its diagnosis, by P. L. Piercy on its transmission and by J. G. Miller on its prevention and treatment.

Part 2 deals with the babesias and opens with a valuable paper by W. O. Nietz on the classification, transmission and biology of the piroplasmas (babesias) of domesticated animals, an intricate subject which is here dealt with by an author who has had wide practical experience in South Africa. J. Carmichael, formerly of the British Colonial Veterinary Service in Uganda, contributes an equally valuable article on treatment and control, and W. D. Malherbe deals with the diagnosis of these diseases. Sophie Jakowska and R. F. Nigrelli describe *Babesiosoma* and other babesoid organisms found in the red blood cells of cold-blooded vertebrates. F. S. Markham contributes a brief introduction to Part 3 on toxoplasmosis, L. Jacobs describes the propagation, morphology and biology of *Toxoplasma gondii*, and H. A. Feldman and Louise T. Miller discuss congenital toxoplasmosis in man. A valuable paper by J. Chr. Siim, of the State Serum Institute, Copenhagen, deals with the symptoms, diagnosis, epidemiology and other aspects of acquired infection of the lymph nodes with *Toxoplasma* (*Toxoplasmosis Acquisita Lymphonodosa*). This section is completed by papers by H. F. Eichenwald on the difficult laboratory diagnosis of toxoplasmosis, by J. K. Frenkel on its pathogenesis and on infections with organisms resembling it, by D. E. Eyles on recent knowledge of its chemotherapy, by W. L. Jellison on the nomenclature of *Besnoitia besnoiti*, and by W. L. Jellison, W. J. Fullerton and Hazel Parker on the transmission of *B. besnoiti* by ingestion.