

it seems certain that if the limb were smooth the moon's place would be determined with considerably greater accuracy than that with which it is at present computed in the Nautical Almanac. Whatever the limb-effects may be, the accuracy should be higher than that which results from six thousand ordinary occultations, since the timing is considerably better than is possible with visual methods, while all effects due to personality, systematic time-differences between stations, and real changes of libration are eliminated. If the method works out as well as is hoped, it will probably be used for long-range geodetic purposes; the accuracy will then be more severely limited by our ignorance of the moon's limb, since considerable changes in the libration are inseparable from a long shadow-path. However, the accuracy should still be considerably greater than can be obtained, for the same purpose, by merely timing the instants of contact, since in that case all the emphasis is on some one point of the limb at each contact; a chance error at that point can cause a large error in the time.

Frozen Foods Consultative Group

To ensure the fullest co-operation and collaboration between the various research organisations engaged in the field of food, and also that inquirers will be directed to the best sources of information, the Frozen Foods Consultative Group was set up last year. It consists of representatives of research organisations, official and semi-official, under the chairmanship of the director of food investigation, Dr. Franklin Kidd. The objects of the Group are in the main the exchange of information on research investigations in progress on the preservation of food by quick-freezing processes so as to prevent overlapping and to discover gaps in research programmes. The terms of reference are: (a) to table and discuss the results of investigations into new developments in methods of preserving food by freezing; (b) to consider the planning of further investigations (each organisation to retain its own independence and the responsibility for its own programme); (c) to maintain contact between investigators in such fields as packaging and engineering which bear on preservation by freezing; (d) to direct inquirers in industry to the best sources of information. The following research organisations and stations are represented: Low Temperature Research Station, Torry Research Station and Ditton Laboratory (all of the Department of Scientific and Industrial Research); Scientific Adviser's Division, Ministry of Food; British Food Manufacturing Industries Research Association; Printing, Packaging and Allied Trades Research Association; British Baking Industries Research Association; Fruit and Vegetable Preservation Research Station, Chipping Campden. The Group has power to invite to its meetings representatives of other organisations such as the Refrigerated Cargo Research Council, the Institute of Refrigeration and the Food Manufacturers Federation. The secretary of the Group is Mr. P. R. P. Claridge, Food Investigation Organisation, Lloyds Bank Chambers, Hobson Street, Cambridge.

Petroleum Films Bureau

It may not be generally known that there exists in London an organisation specializing in circulation (free of charge to responsible bodies such as educational and Service authorities) of 35 mm. and 16 mm. sound and silent documentary instructional films. The

August catalogue has reached us from the Petroleum Films Bureau, 46 St. James' Place, London, S.W.1, sponsors of this scheme, from which it is clear that the range of subjects covered is not limited to varying aspects of the oil industry. Titles of general interest include the microscope, microscopy of opaque objects, hydraulics and hospital service. "How Oil is Produced and Refined" is covered by fifteen different reels giving a total of more than three hours showing. Other sections deal with automobile engineering and road safety for children. Short synopses of each film are available; also lantern slides, with appropriate lecture notes, on the subject "About Oil" can be borrowed to illustrate the early history of oil, its nature, origin, production, refining and transportation. This is a valuable scheme, capable of great expansion and certain of support in lecture theatre, classroom, drill hall and, presumably, the home.

Fertilizer Manufacture in East Africa

A SCIENTIFIC mission from East Africa is at present on a short visit to the United States to study the methods employed by the Tennessee Valley Authority in the manufacture of fertilizers. Large deposits of rock phosphates are known to exist in Uganda, and it is expected that the knowledge gained from this visit can be applied to the exploitation of these deposits when hydro-electric power becomes available from the Owen Falls scheme. The members of the mission are: Dr. A. J. V. Underwood, industrial consultant in London to the East Africa High Commission; Mr. H. B. Stent, acting chairman of the East African Industrial Research Board; Dr. K. A. Davies, director of the Geological Survey, Uganda; and Mr. C. R. Westlake, chairman of the Uganda Electricity Board.

Life-Histories of Birds

THE United States National Museum has issued a number of bulletins dealing with the life-histories of various North American birds. The latest addition to the series covers the nuthatches, wrens, thrashers and their allies, and is a painstaking work. Mr. Burt, the author, says that he has endeavoured to give as full a life-history as possible of the best-known sub-species of each species, and has written more briefly of the related sub-species, by this method avoiding repetition and duplication. He has amassed much information which is presented in a clear and readable manner, the volume being illustrated by a large number of photographs, mostly excellent ones, the last, of a sage thrasher, being a particularly successful picture.

Edward Livingston Trudeau (1848-1915)

WHEN he was a student at the New York College of Physicians and Surgeons, Edward Livingston Trudeau, who was born on October 5, 1848, was taught to regard tuberculosis as an incurable disease. When, therefore, the celebrated physician Edward G. Janeway in 1873 diagnosed extensive tuberculosis in his left lung, his patient, who had recently graduated and married and whose brother had died of the same disease, felt he was under sentence of death and gave up his practice to spend his last days in the Adirondack Mountains. To his and everyone else's surprise he recovered, and in 1884 established the open-air Adirondack Cottage Sanitarium—the first in the United States. In the isolation of a primitive forest, badly crippled and single-handed, Trudeau preached and practised the gospel of fresh air and extolled

the virtues of rest. Having read a translation of Koch's classic paper on the etiology of tuberculosis, he built himself a modest laboratory in his own home. Out of its ashes sprung the present Saranac Laboratory—the first of its kind in the United States. Trudeau wrote little on clinical subjects; but his laboratory studies are contained in a large number of valuable papers, including experiments on immunity and on the effect of fresh air on tuberculous rabbits. He was the first president of the National Association for the Study and Prevention of Tuberculosis. His optimism and charm endeared him to all his patients, perhaps the most famous of whom was Robert Louis Stevenson.

Convention on High Vacua

THE Society of Chemical Industry is sponsoring a convention on high vacua under the presidency of Sir Charles Darwin, director of the National Physical Laboratory, which is being organised by Mr. L. L. Maitland, director of British-American Research, Ltd., to be held at Gleneagles during October 12–13. Among the topics to be discussed are the applications of high vacua to plastics, dehydration, distillation generally and the distillation of fatty oils, the metallurgical industry and nuclear physics and atomic energy. Full opportunity will be provided for discussion. Information on accommodation and travel arrangements can be obtained from Mr. L. L. Maitland, British-American Research, Ltd., Block E.2, Hillington North, Glasgow, S.W.

Photo-electric Spectrometry Group

AN association has been formed of those interested in instruments for photo-electric spectrometry and their applications. It has been named the Photo-electric Spectrometry Group, without prejudice to its possible future affiliation to an existing scientific body. The inaugural meeting of the Group was held in Cambridge on July 16. Out of about a hundred and twenty who were invited, sixty-four attended. New instruments were on view and papers were read by Dr. E. R. Holiday (London Hospital) on "Adaptation of the Hilger Spekker and Medium Spectrograph for Photoelectric Work", and by Mr. G. H. Beaven (Thornton Research Centre, "Shell" Refining and Marketing Co., Ltd.) entitled "Notes on the Operation, Maintenance and Servicing of the Beckman Model D.U. Spectrophotometer".

The following were appointed officers of the Group: *Chairman*: Dr. J. R. Edisbury, Research Department, Lever Bros. and Unilever, Ltd., Port Sunlight; *Vice-Chairman*: Mr. G. H. Beaven, Thornton Research Centre, "Shell" Refining and Marketing Co., Ltd., P.O.B. No. 1, Chester; *Hon. Secretary*: Mr. W. H. Storey, Unicam Instruments (Cambridge), Ltd., Arbury Works, Cambridge; *Hon. Treasurer*: Mr. J. R. Stansfield, Hilger and Watts, Ltd., 98 St. Pancras Way, London, N.W.1; *Committee*: Mr. C. G. Cannon, Physics Department, University of Reading; Mr. B. S. Cooper, Research Department, General Electric Co., Ltd., Wembley; Dr. J. G. A. Griffiths, A.D.I. (Sc.), Air Ministry, Whitehall, S.W.1; Dr. E. R. Holiday, Research Department, London Hospital, E.1; and Dr. F. Wokes, Ovaltine Research Laboratories, King's Langley, Herts. Subjects on which it is proposed to hold further meetings or whole-day conferences are flame photometry (jointly with the Institute of Physics Industrial Spectroscopic Group), fluorescence, photo-electric recording of spectra, stray light, and reflexion spectra.

A bulletin will be issued periodically for private distribution to members and will contain reports of meetings with details of papers and discussions. It will also include abstracts, a question and answer section, and give information about new designs and the location of spares for existing instruments. The subscription is 10s. per annum, commencing October 1, and includes the cost of the bulletin. Membership forms can be obtained on application to the honorary secretary.

National Research Council of Canada: Medical Fellowships

MEDICAL fellowships have been awarded by the National Research Council of Canada to thirty-one graduates in medicine to enable them to pursue post-graduate research during 1948–49. Distribution of the awards by the universities at which they will be held is as follows: McGill, 8; Montreal, 1; Queen's, 4; Toronto, 7; Western Ontario, 8; Manitoba, 1; Oxford, 1; Zurich, 1. These fellowships vary in amount from 1,500 to 2,500 dollars, depending on the previous training and experience of the candidates. The Division of Medical Research of the National Research Council also makes grants-in-aid to Canadian universities for medical research studies on approved subjects. During the present year, 118 such grants, valued at 264,173 dollars, are being held. The nominal value of the thirty-one medical fellowships awarded this year is 64,600 dollars.

Physical Society of London: Award of Charles Vernon Boys Prize

THE Charles Vernon Boys Prize of the Physical Society, given annually for distinguished research in experimental physics, is being awarded this year to Prof. S. Tolansky in recognition of his work in interferometry. The Prize will be presented at a meeting of the Society on October 8, when Prof. Tolansky will give an address on "Current Investigations with Multiple-Beam Interferometry". Prof. S. Tolansky has held the chair of physics at the Royal Holloway College, University of London, since 1947, and has done extensive research work in optics and spectroscopy; during the war years he was engaged on research in connexion with atomic energy.

Prof. R. W. Wood, professor of experimental physics at the Johns Hopkins University since 1901 and research professor since 1937, will give an address to the Society before the award of the Charles Vernon Boys Prize, his subject being "Spontaneous Deformation of Crystals". Prof. Wood is receiving an honorary degree of D.Sc. from the University of Oxford.

Lectures on the Atomic Age

THE Sir Halley Stewart Trust has arranged a course of six free lectures on "The Atomic Age", to be given at the Memorial Hall, Farringdon Street, London, on Tuesdays, beginning October 26, at 6 p.m. The speakers will be Prof. M. L. Oliphant, on "The Scientific Achievement"; Prof. P. M. S. Blackett, on "The Military Consequences of Atomic Energy"; Mr. R. F. Harrod, on "The Economic Repercussions of Atomic Power"; Lord Russell, on "Our Scale of Values in the Atomic Age"; Mr. Lionel Curtis, on "The Political Repercussions"; and Prof. D. W. Brogan, on "America as Atlas". For free reserved seats application should be made to the Secretary, Sir Halley Stewart Trust, 167 Strand, London, W.C.1.