

anomalies are able to produce plastic flow if sufficient time is available. The lower limit, below which the processes stop, is important. The *Polfluchtkraft* probably produces stresses of the order of one hundredth of the stresses in Scandinavia stated to be large enough to maintain plastic flow. If the *Polfluchtkraft* is large enough to maintain plastic flow, then we should not be surprised to see continents being shifted by subcrustal flow during the history of the earth under the action of such small but persistent forces.

## RESEARCH IN GEOPHYSICS

THE annual report of the director of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, published in December 1940, is an important record of achievement carried out under difficulties caused by war. It describes the initiation of several fresh experimental projects, the continuance of the previous programme of field observations, the reduction of existing data, the organization of and participation in several important congresses, and the publication of a large number of scientific papers.

With the aid of a cascade high-pressure bomb, hydrostatic pressures in excess of 200,000 atmospheres were attained at the Geophysical Laboratory. This apparatus renders possible the investigation of the magnetic properties of materials at pressures comparable with those actually existing in the earth's interior. For a specimen of cadmium-magnesium-iron-spinel under a pressure of 10,000 atmospheres, a shift in the Curie temperature of as much as 5° C. was observed. These measurements necessitated the development of an alternating-current bridge capable of responding to changes in inductance as small as  $1/10^{10}$  henry.

One of the outstanding problems in atmospheric electricity arises in connexion with the 'supply current', which in an undetermined manner supplies negative electricity to the earth at a rate of about 1,800 amperes, and so maintains a negative charge on the surface in fair-weather areas. The actual current flowing from air to earth in such areas depends to some extent upon meteorological and other more or less local factors, which have to be taken into account in arriving at a measure of the supply current.

In connexion with the volcanological investigations planned by the Institution, a series of earth resistivity measurements were carried out with the view of determining the thickness of the extensive deposits of volcanic ash occurring in Guatemala. Depths extending to 600 miles were recorded.

Laboratory work in nuclear physics centred around the high-voltage electrostatic generator, which was induced to yield tensions up to 3-6 million volts, and the installation of a 60-in. cyclotron. Measurements were made on the scattering of slow and fast neutrons by collisions with protons, on the resonance scattering of protons by helium nuclei, and on the splitting of the deuterium nucleus into a proton and a neutron by high-energy gamma radiation.

It is proposed to employ the cyclotron, when completed, in connexion with work of a biological and chemical character, utilizing the radioactive isotopes of ordinary elements as tracers for following various reactions. A scheme for the adequate shielding of those operating the cyclotron from the powerful radiations generated by it has been worked out.

## FORTHCOMING EVENTS

*(Meeting marked with an asterisk is open to the public.)*

### FRIDAY, SEPTEMBER 26

BRITISH SOCIETY FOR INTERNATIONAL BIBLIOGRAPHY (at the Institution of Electrical Engineers, Savoy Place, London, W.C.2), at 2 p.m.—Joint Discussion with the Library Association and the Association of Special Libraries and Information Bureaux on "The Preparation of Indexes to Volumes of Periodicals" (Opener: Dr. S. C. Bradford), and "Listing Titles of Periodical Publications" (Opener: Mr. E. Lancaster-Jones).

### FRIDAY-SUNDAY, SEPTEMBER 26-28

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (at the Royal Institution, Albemarle Street, London, W.1).—Discussion on "Science and World Order".\*

### FRIDAY, SEPTEMBER 26

Morning Session: "Science in Government" (Chairman: Sir Richard Gregory, Bart., F.R.S.). Afternoon Session: "Science and Human Needs" (Chairman: Hon. J. G. Winant).

### SATURDAY, SEPTEMBER 27

Morning Session: "Science and World Planning" (Chairman: Mr. I. M. Maisky). Afternoon Session: "Science and Technological Advance" (Chairman: Dr. E. Benes).

### SUNDAY, SEPTEMBER 28

Morning Session: "Science and Post-War Relief" (Chairman: Dr. Wellington Koo). Afternoon Session: "Science and the World Mind" (Chairman: Mr. H. G. Wells).

## APPOINTMENTS VACANT

APPLICATIONS are invited for the following appointments on or before the dates mentioned:

LECTURER IN PHARMACEUTICAL SUBJECTS, and a DEMONSTRATOR IN PHARMACEUTICS—The Principal, College of Technology and Commerce, Leicester (September 27).

ASSISTANT LECTURER IN PHARMACEUTICAL CHEMISTRY—The Registrar, University College, Nottingham (September 29).

LECTURER IN ELECTRICAL ENGINEERING AND ALLIED SUBJECTS—The Principal, County Technical College, Worksop, Notts. (September 30).

SENIOR LECTURER (MALE) IN EDUCATION—The Principal, Training College for Teachers, Collegiate Crescent, Sheffield (September 30).

CHIEF INSTRUCTOR with experience as Head of Engineering Branch of Technical Education, a SPECIALIST IN PHYSICS, and TWO SENIOR and TWO JUNIOR LECTURERS who should be Physicists or Specialists in Mechanical Engineering, for the training of Ordnance Mechanical Engineers in India—The Secretary, Military Department, India Office, London, S.W.1 (October 1).

HEADMASTER of Stockport Grammar School—The Clerk to the Governors, Stockport Grammar School, Mile End, Stockport (October 15).

LECTURER IN ENGINEERING SUBJECTS in the Rotherham College of Technology and Art—The Director of Education, Education Offices, Rotherham.

## REPORTS AND OTHER PUBLICATIONS

*(not included in the monthly Books Supplement)*

### Great Britain and Ireland

Department of Scientific and Industrial Research: Road Research Laboratory. Wartime Road Note No. 1: Recommendations for Tar Carpets and Surface Dressings. Pp. 12. 6d. net. Wartime Road Note No. 2: Sources of Naturally-coloured Chippings in Great Britain. Pp. 14. 6d. net. (London: H.M. Stationery Office.) [99]

### Other Countries

Universidad Nacional de La Plata. Publicaciones de la Facultad de Ciencias Fisicomatematicas. No. 137: Cuarta Reunion Anual de Caminos, Vol. 1. Pp. 350. No. 138: Cuarta Reunion Anual de Caminos, Vol. 2. Pp. 300. (La Plata: Universidad Nacional de La Plata.) [278]

National Research Council of Canada. Review of Activities for the Year ended March 1940. (N.R.C. No. 976.) Pp. 155. (Ottawa: National Research Council of Canada.) 75 cents. [278]

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