

This gives the first reasonably full account in English of the extensive geological work which has been conducted in the U.S.S.R., describing the organization of teaching and research and giving brief notes on progress in the various branches of the science. Although the scope of his short paper is immense, Prof. Tomkeieff brings to it a lifetime study of Russian literature, with the result that he opens new avenues to all geologists who are prepared to surmount the language barrier.

Magnetic Annealing

THE phenomenon of magnetic annealing, that is to say, the production of directional properties in a homogeneous alloy by allowing it to cool from a high temperature in the presence of a strong magnetic field, is well known from the early experiments of Bozorth and Dillinger on soft magnetic materials and those of Oliver and Shedden on hard ones. But the reasons for the establishment of such magnetic anisotropy have always been somewhat obscure. According to an announcement issued by the Bell Laboratories, recent experiments have thrown some light on the problem in the case of permalloy, which is in great demand in the form of fine tapes in electronic memory devices, where their switching times under suitable conditions are very short. The new experiments indicate that the magnetic annealing is not effective unless about 14–20 parts of oxygen per 10^6 are present in the permalloy, and there is little beneficial change in increasing the oxygen content beyond these limits. While the mechanism by which the oxygen acts is not clearly understood, it is suggested by Heidenreich, Burbank and Nesbitt that atoms are deposited on a crystal stacking plane at high temperatures, and so result in a displacement or dislocation of the next plane of atoms in the alloy. Whether this suggestion is correct or not, it certainly appears that close control of oxygen content is necessary.

A Commercial Thermoelectric Cold Box

It is well known that many firms in Great Britain, the U.S.S.R. and the United States of America are working on the development of a practical form of thermoelectric refrigeration; also that the General Electric Co., Ltd., at their research laboratories at Wembley, have carried out extensive investigations on the fundamental properties of bismuth telluride and other semiconductor compounds. It is therefore not surprising to learn in a recent announcement that the Company has now produced what is claimed to be the world's first prototype model of a commercial design of thermoelectric cold box. The box is about 1 ft.³ in size and has a drop-down door. The Peltier effect is used for the production of cold, the cooling power of about 0.25 W. taking place at one junction of the thermocouple through which a direct current of 5–10 amp. is passed. The drop in temperature in the enclosure is 20–30 deg. The practical stage of development has been reached by the production of efficient semiconductor thermocouples and a form of construction which provides adequate thermal insulation between the hot and cold sides of the couple. The advantages of the system are lightness, the absence of moving or wearing parts, silent operation and the avoidance of chemical refrigerants. It can operate from a low-voltage battery d.c. supply, such as a motor-car battery, and the prototype cold box fits easily into the boot of a car.

The Wellcome Trust : Grants for Medical Research

THE Wellcome Trustees have announced that among the grants made during the half year ended February 29 were: £120,000 to King's College, University of London (Prof. J. T. Randall), towards the purchase of the lease of premises to house a Department of Biophysics; £70,000 to the University of Toronto (Prof. C. H. Best), to build and equip basically additional research accommodation in the Charles H. Best Institute; £15,000 to the Johns Hopkins Hospital, Baltimore (Prof. A. McGehee Harvey), to adapt premises in the Department of Medicine as a research laboratory for studies of the heart and blood vessels in man, especially by the method of X-ray cinematography; £30,000 to University College, London (Prof. P. B. Medawar), to build and furnish a research unit in cellular immunity as an annexe to the Department of Zoology; £8,000 to the University College of the West Indies, Jamaica (Prof. J. Waterlow), to purchase a mass spectrometer for use in the Medical Research Council's Tropical Metabolism Research Unit; and £2,500 per annum for up to five years, to Prof. A. St. G. Huggett, St. Mary's Hospital Medical School, London, to provide technical assistance and research expenses for work on the physiology of pre-natal growth.

Senior Research Fellowships of the U.S. Public Health Service

THE U.S. Public Health Service has announced that it will award twenty-one five-year senior research fellowships to scientists in eighteen universities and schools of medicine in thirteen States. Cost of the awards for the first year will amount to 260,562 dollars. No maximum stipend is set by the Public Health Service for these fellowships. Instead, each institution requests an amount for the stipend in accordance with its policy. The institution also receives 2,000 dollars a year towards research and travel expenses connected with the project. This is the fourth year of a five-year Federal programme to increase man-power for research in the pre-clinical sciences. The programme is administered by the Division of General Medical Sciences of the National Institutes of Health. The awards are designed principally for the partial support of promising young scientists sponsored by preclinical departments in the period between the completion of their postdoctoral research training and their eligibility for permanent academic appointments. In special circumstances, senior scientists may be awarded these fellowships to supply needed strength in preclinical science departments of schools of medicine, dentistry and public health.

First International Congress on Automatic Control

As the British member body of the International Federation of Automatic Control, the British Conference on Automation and Computation has, during the past year, selected 28 papers to form the British contribution on the subject of automatic control for presentation at the first International Congress on Automatic Control in Moscow during June 27–July 7. The arrangements for this Congress are being undertaken for the Federation by the U.S.S.R. National Committee for Automatic Control. The total number of papers to be presented is 282, and 20 countries are represented. The leader of the British delegation is Mr. John F. Coales of the