

Physics Division; in 1951, he went to Corona, California, to serve for two years as director of the then newly established Corona Laboratories. Dr. Huntoon was appointed associate director for physics at the Bureau in 1953, and deputy director in 1958. He was born in Waterloo, Iowa, in 1909, studied at Iowa State Teachers College, and took his Ph.D. degree in experimental nuclear physics at the State University of Iowa in 1938.

#### Dr. J. C. Schoonover

DR. IRL C. SCHOONOVER has for the past five years been an associate director of the National Bureau of Standards, serving as principal staff adviser to the director on programme development, co-ordination and evaluation. Dr. Schoonover's thirty-year association with the Bureau has included the organization and direction of basic research programmes in the properties of materials, particularly at extremely high temperatures. He is well known for his direction of a research programme on dental materials, and was a pioneer in research on polymer structure at the Bureau. His work and leadership provided an integrated approach to studies of the chemical and physical properties of long-chain molecules in relation to structure. Dr. Schoonover received the Department of Commerce Superior Accomplishment Award in 1946 for his work on refractory materials, undertaken during his secondment to Los Alamos, and in 1961 he was awarded the Department of Commerce Gold Medal for Exceptional Service, being cited for "extraordinary versatility as a scientist-executive, and . . . exceptional leadership". Dr. Schoonover was born in Belington, West Virginia, and studied at Davis and Elkins College and George Washington University. He gained M.A. and Ph.D. degrees from Princeton University.

#### Dr. A. T. McPherson

DR. A. T. MCPHERSON has been associate director of the Office of Technical Services of the Department of Commerce for the past sixteen months. He worked there with Government agencies and national standards organizations in developing a new programme of inter-American co-operation on standards. Prior to this, Dr. McPherson had for ten years been an associate director of the National Bureau of Standards, co-ordinating committee activities on codes and specifications, and directing calibration and testing services throughout the Bureau. His investigations at the Bureau have included work in the fields of gas chemistry, electrical insulation, natural and synthetic rubber, and high polymers. From 1943 until 1951 he was chief of the Organic and Fibrous Materials Division, when the major part of his own scientific work was concentrated on rubber research. During the Second World War he served as a technical adviser on the Rubber Survey Committee, and was instrumental in the application of numerous new techniques in the making of both natural and synthetic rubbers. Dr. McPherson was born in Marceline, Missouri, and studied at Trinity University and the University of Texas. He was awarded a Ph.D. in chemistry by the University of Chicago in 1923.

#### R. B. Scott

RUSSELL B. SCOTT has for the past ten months served as acting director of the Boulder Laboratories (Colorado) of the National Bureau of Standards. He was chief of the Cryogenic Engineering Laboratory at Boulder from its establishment in 1954 until his appointment as acting director. The Cryogenic Laboratory is one of three which comprise the National Bureau of Standards Laboratories at Boulder, the others being the Central Radio Propagation Laboratory and the Radio Standards Laboratory. Mr. Scott is a veteran of thirty-five years service in the cryogenic field with the Bureau, beginning with a post

in the low-temperature section in Washington Laboratories in 1928. During the Second World War he was involved in the work of determining properties of uranium compounds, in support of the Manhattan Project. In 1948 he was appointed chief of the Cryogenic Physics Section in Washington. Mr. Scott was born in Ludlow, Kentucky, in 1902, and studied at the University of Cincinnati and the University of Kentucky. He was awarded an M.S. degree in physics by the University of Kentucky in 1928.

#### Research Contracts Awarded by the International Atomic Energy Agency

THE two-hundredth research contract awarded by the International Atomic Energy Agency since this programme, intended to promote the peaceful uses of nuclear energy, began in 1958, was recently given to the Lovanium University at Leopoldville, Congo. In addition, 165 contracts were renewed during that period. The cost of the programme so far amounts to 2,923,035 dollars (1,770,469 dollars for the original 200 contracts and 1,152,566 dollars for 162 renewals). Out of this total 2,447,292 dollars were paid out of the Agency's own funds and 475,743 dollars were provided by the United States under an agreement concluded in 1960 between the Agency and the United States Atomic Energy Commission. The following is a breakdown of research contracts awarded by the Agency:

Subject category	Number of contracts placed or renewed	Amount allocated in U.S. dollars
Radioactive waste management and environmental research	56	508,158
Health physics and radiation protection	90	573,382
Radiobiology	81	697,697
Safeguards methods	14	235,520
Investigations involving the use of reactors	11	171,685
Radioisotope applications in agriculture	58	307,650
Radioisotope applications in hydrology	9	67,185
Radioisotope application in medicine	41	335,158
Miscellaneous	5	26,600
Total	365	2,923,035

The research to be carried out in Leopoldville at the TRICO reactor Centre should help to elucidate various affections of bone frequently found in inhabitants of that region, and caused by leprosy, smallpox and other diseases or by nutritional deficiencies. The Agency will provide radioisotopes as well as various other supplies and equipment worth 7,750 dollars.

#### Science in Sixth-form General Education

PART 2 of the Science and Education Report *Science in Sixth-Form General Education*, issued by the Association for Science Education, complements the Policy Statement previously issued by outlining the proposals of the Panel for courses which aim to give some understanding of the methods of science and appreciation of the effects of science on everyday life (Pp. 62. London: John Murray. Published for the Association for Science Education, 1963. 2s. net). Besides indicating the general principles of such courses, the Report presents detailed suggestions for courses on the nature of scientific thought; cosmology; energy; matter; life; behaviour; environment; and science and society. They are not intended to provide a syllabus to be studied in full, but rather to offer a broad field of suggestions which may assist teachers to devise their own courses. For the first course, for example, a historical and methodological approach and a logical and philosophical approach are outlined, with adequate bibliographies, and these bibliographies are frequently supplemented by lists of film-strips and films. The Report is intended to be read in conjunction with the Policy Statement and with the other three sections of Part 1, dealing with physics, biology and chemistry, respectively, for grammar schools. It is an admirable piece of work on

which the Association as well as the compilers are to be warmly congratulated. If it is widely and wisely read it could do a great deal to remove the weaknesses in education which have been the subject of present-day complaints, and it behoves the universities to make sure that no obsolete entrance requirements are allowed to frustrate the adoption in the schools of courses of the type herein proposed.

#### Measurements of Standard Frequency Transmissions

MEASUREMENTS of the deviations of standard frequency transmissions have been made for a number of years by the Standards Division of the National Physical Laboratory, Teddington. Publication of these values, which related to Rugby transmitters, *MSF* 60 kc/s and *GBR* 16 kc/s, and the Droitwich 200-kc/s transmitter of the British Broadcasting Corporation, were discontinued in July 1962 when the journal in which they had appeared ceased to exist. Arrangements have now been made between the Director of the National Physical Laboratory and the Council of the British Institution of Radio Engineers for these standard frequencies to be published each month in the Institution's journal, *The Radio and Electronic Engineer*. The first set of values relating to the month of June 1963 were published in the July 1963 issue. A short communication from the National Physical Laboratory explaining the methods of measurements appears in *The Radio and Electronic Engineer* for July.

#### Studies in Density Difference Phenomena

THE Department of Scientific and Industrial Research has granted £38,000 to Prof. W. Frazer and Dr. D. I. H. Barr, of the Civil Engineering Department of the Royal College of Science and Technology, Glasgow, in aid of integrated field and laboratory studies in density difference phenomena. The grant will allow for the extension of the present laboratory apparatus in which basic studies of the phenomena are carried out, and will enable the College to purchase and man a vessel with which intensive field studies can be initiated.

Density currents are set up in bodies of water when a flow differing in density from the receiving body is introduced. This can occur in many ways—by the fresh water from a river entering an estuary or the sea; by hot circulating water from the cooling system of a thermal power station being discharged into the sea or a river; and by the discharge of a sewage outfall. Mixing does not occur immediately and in many cases the introduced water can be traced for considerable distances. A striking example is the fact that the fresh-water flow from the River Amazon can be traced for hundreds of miles from the mouth of the river. The economic importance of the study of the phenomena is obvious; the currents set up in an estuary can play a very large part in the movement of sediment, and the Clyde Navigation Trust has made a grant of £8,000 to intensify work on this aspect of the subject in the River Clyde. In a thermal power station it is important that the hot circulating water issuing is not taken back into the system. This latter problem has been the subject of investigation at the College for six years, and studies have been carried out on two large hydraulic scale-models of the circulating water systems of Methil and Cockenzie Generating Stations by the Civil Engineering Department on behalf of the South of Scotland Electricity Board. At present, Prof. Frazer is advising on the similar problem which may arise in connexion with the proposed 2,400-MW station at Longannet in Fife. This will involve the construction by the South of Scotland Electricity Board of a very large hydraulic scale model of the Forth Estuary.

#### Television in the Medical School

AN edited version of the verbatim transcript of the proceedings of the symposium *Television in the Medical*

*School*, arranged by the Association for the Study of Medical Education and the Scientific Film Association at the London Hospital Medical College, May 10–11, 1961, has now been issued (Pp. v + 73. Edited by Charles Engel and John Ellis. London: Association for the Study of Medical Education, 1963). It includes the papers presented at the session on television in research, dealing with basic theory, radiology, microscopy, endoscopy—ophthalmoscopy, and behaviour study, and the subsequent discussions; those presented at the sessions on television in teaching, dealing with present-day applications and investigations of television in American medical and dental schools; the application of television in pre-clinical teaching; in teaching histology; in teaching psychiatry; television endoscopy in clinical teaching; and clinical applications in German universities, as well as the ensuing discussions. Finally, it includes the papers presented on installations and on minimum basic equipment for television, and the replies from a panel answering questions on equipment and staff given at the session on practical requirements and cost of television in the medical school.

#### Soil Survey of Great Britain

CHIEF credit for the early steps in Britain on the examination of soils in the field, based on Russian, and later American, concepts of pedogenic processes and profile development, must be attributed to a small group of soil scientists including the late Prof. G. W. Robinson, Mr. Morley Davies, Sir William Ogg and Prof. T. Wallace. Meetings were held in various parts of the country to compare notes, discuss classification and initiate mapping. It was not until after the War, however, that the survey of soils was undertaken on a serious scale; it became one of the responsibilities of the Agricultural Research Council with the formation of the Soil Survey Research Board and an annual report of the work completed and in progress is issued; the present one provides the reader with an excellent account of the rapidly increased volume of information available on the soils of Great Britain (Report No. 15, 1962. Pp. vi + 48. London: Agricultural Research Council. Obtainable from H.M.S.O., 1963. 5s. net). The scientific staff of the Soil Survey now numbers more than fifty; about two-thirds are employed in England and Wales with headquarters at Rothamsted, the remainder being in Scotland with headquarters at the Macaulay Institute. Frequent exchanges of views among surveyors are designed to maintain agreement in classification and nomenclature, and memoirs are published to explain and supplement the information on the maps. It will take many years to complete the soil map of the whole country; rapid reconnaissance is helpful, but detailed surveying is essential, and the effort spent has already been justified in the successful application of the results in agricultural and forestry problems. In addition to the regular mapping programme, assistance is frequently given in special surveys for such activities as Nature reserves, restoration of open-cast sites, archaeological excavations, husbandry farms and field experimentation. An important contribution has been made in the production of a soil map of Europe, and officers are from time to time seconded to start or advance surveys of economic importance abroad.

#### Bibliography of Seismology

*The Bibliography of Seismology* continues its valuable work. It is compiled by J. H. Hodgson and F. E. Langill and published by the Dominion Observatory, Ottawa, for the Canadian Department of Mines and Technical Surveys. Nos. 5–10, Volume 22, which have been recently published, deal with work published during the years 1959, 1960 and 1961 and together contain 2,954 items. Seismic prospecting provides 533 items, studies of crustal structure 140 entries, and studies of surface waves 166 notes. The