

character, are identical with the 'principles' that all celestial movements are circular and all celestial bodies immutable, it becomes my duty to point out that this is precisely the kind of cerebration that science was created to displace. . . . In cosmology we are again, like the philosophers of the Middle Ages, facing a world almost entirely unknown".

## NATIONAL RESEARCH DEVELOPMENT CORPORATION: CONTINUATION OF BORROWING POWERS

THE Development of Inventions Bill, as foreshadowed in the fourth annual report of the National Research Development Corporation (see *Nature*, February 6, p. 249), received its second reading in the House of Commons on January 26. The Corporation's borrowing powers under the 1948 Act expire on June 30, 1954, and the Bill extends from five to ten years the period during which advances may be made to the Corporation and payment of interest on such advances waived. Numerous tributes to the work of the Corporation were paid during the debate, and in moving the second reading of the Bill, the President of the Board of Trade, Mr. P. Thorneycroft, explained the purposes of the clause which slightly extends the scope of the Corporation's activities. There appeared to be some doubt as to whether under the original Act the Corporation was empowered to carry out research for the purpose of developing an existing invention if this should lead to a substantially new invention. The first sub-section of Clause 2 of the new Bill is intended to remove this doubt and authorizes the Corporation to promote or assist any research likely to further the development or exploitation of inventions or to enhance their value.

The second sub-section of this same clause, Mr. Thorneycroft explained, arose from a comment in the last report of the Advisory Council on Scientific Policy as to the desirability of extending the existing organization for the use of research and development contracts. The sub-section authorizes the Corporation to promote and assist research intended to satisfy specific practical requirements where the Corporation believes the research is likely to lead to an invention, while a further sub-section of the clause empowers the Corporation to assist the continuation of a research which hitherto has proved fruitless from a practical point of view but which appears likely to lead to practical results. Exercise of its functions under these two sub-sections is subject to the approval of the Lord President of the Council and of the President of the Board of Trade.

Mr. Thorneycroft explained that this proviso was introduced to avoid the overlapping of the work of the Corporation and that of the universities, of other government departments or of research organizations like the Medical Research Council or the Department of Scientific and Industrial Research. He also stressed the point that the Corporation's task is to promote and assist research. It is not primarily to undertake research, he said, and is never to undertake it in competition with industry or with other government departments. When the Bill received its third reading on February 1, the Parliamentary Secretary

to the Board of Trade added further that it was never intended to give the Corporation general powers to undertake surveys or investigations to discover the practical needs of industry. That, he said, can best be done by industry itself, though possibly with the help and encouragement of government departments and at the suggestion of the National Research Development Corporation. Once such an investigation has established the prospect of industrial benefit, the powers to be given to the Corporation will enable it to take the responsibility for getting the required research done.

Two comments which were made during the debate on the second reading of the Bill are of particular interest. Mr. John Edwards, in welcoming the Bill, pointed out that the National Research Development Corporation is now inevitably involved in the provision, in a modest way, of risk capital, and he thought that the Bill would enable the Corporation to make a further contribution towards restoring a balance between the proportion of the resources devoted to fundamental research and those devoted to development. Mr. Austen Albu, who estimated the total expenditure during 1951 in Britain on research and development to be £288 million, of which £70 million was for civilian research, stressed the need to stimulate backward industries and to avoid overlapping. In some research associations, he said, there is a belief that projects in their field are sometimes undertaken in government establishments; and Mr. H. Strauss assured him that the reference to the President of the Board of Trade and the Lord President of the Council was designed simply to prevent such overlapping.

## COMMONWEALTH FUND, NEW YORK

REPORT FOR THE YEAR 1952-53

THE thirty-fifth annual report of the Commonwealth Fund\* covers the year ending June 30, 1953, and deals primarily with the activities for which grants were made during 1952-53. For medical education appropriations during the year totalled 602,977 dollars, for experimental health services and hospital activities 224,323 dollars, for medical research 517,101 dollars, for advanced fellowships in medicine and allied fields 75,000 dollars, for the Division of Education 310,050 dollars, and a special grant of 2,750,000 dollars was made for the construction of a dormitory, to be known as the Edward S. Harkness Memorial Hall, for medical students at Yale University. Actual disbursements during the year from current and previous appropriations totalled 2,584,179 dollars. Among the nine projects in medical education for which new or renewed appropriations were voted are a programme at Cornell University Medical College to provide students with a wider experience in medical care through continuity of contact with patients; grants to the University of Pennsylvania School of Medicine for the continuance of its family adviser programme until it is fully incorporated in the University framework, and for a year's pilot-study of the medical school as an educational environ-

\* The Commonwealth Fund. Thirty-Fifth Annual Report for the Year ending June 30, 1953. Pp. x+38. (New York: Commonwealth Fund, 1953.)

ment; a revised teaching programme at the Medical School of Western Reserve University, in which a systematic effort is being made to correlate basic science subjects with clinical ones; and further support to the study of psychiatry and its relation to medicine at Washington University, the University of Louisville and the Saskatchewan Department of Public Health.

The Fund continued its support of the major experiment in integrated health care in Hunterden County, New Jersey, where a medical centre that was opened in June 1953 is testing the theories of its long-term planning. A further grant to Hunterden was for a county-wide health inventory, and a grant was made to the Rip Van Winkle Foundation towards the development over three years of a mental health programme for Columbia County. Another grant went to the National Opinion Research Centre in Chicago for the completion of its national survey of opinion about mental health and illness, and support was also given to the qualitative study at the Yale Psychiatric Clinic of the effect of interactions between patients and staff and between the different ranks of staff on the daily life and therapeutic effectiveness of a psychiatric ward.

During the year the Fund reviewed its interests in the field of medical research to which over seven years it has given nearly three million dollars for fifty-seven projects. Projects for which support was discontinued were largely in the fields of infectious disease, cardiovascular disease and cancer research, where major support is now received from other sources. Current research grants cover nine projects, one of which was new in 1952-53, and are in three categories: the first, which is primarily concerned with interaction between organism and environment, includes studies of growth and personality development, certain types of neuro-psychiatric research and studies of relations between social environment and chronic disease; the second deals primarily with integrative processes within the organism and includes studies of the neurological and endocrine systems and their relations; and the third is weighted in favour of basic biological studies.

Advanced fellowships awarded during the year included four in medicine or surgery, one for advanced work in psychiatry, and five for interdisciplinary studies as well as two fellowships to foreign workers. The programme of fellowships offered to British graduates, journalists and Civil servants for study and travel in the United States was broadened in 1952 to include persons on the Continent of Europe by a series of awards for candidates from the Salzburg Seminar in American Studies. Forty-nine Fellows in all categories were in residence in the United States during the year beginning September 1952, including nine British Fellows of the 1951 class who were granted extensions. For the present year, fifty-nine Fellows will be in residence, including thirty-seven on new awards and seventeen on extensions, the two-year figures including sixteen 'Salzburg' Fellowships. For the latter the Fund has been experimenting with a new plan of selection in which it has been possible to make nominations after a month's daily experience with the participants. Experience over the years is heavily in favour of the tenure of at least one full year, including two or three months of travel in the United States, and stress is laid on the value of the fellowships in developing leadership, and also in encouraging the exchange of ideas and information.

## DEFENCE STANDARDS LABORATORIES, AUSTRALIA

REPORT FOR THE YEAR 1952-53

SINCE the transfer to other sections of the Research and Development Branch of the Department of Supply, Commonwealth of Australia, of research and development work on new weapons, the Defence Standards Laboratories, which have now been incorporated in the Research and Development Branch, have concentrated on scientific advisory service, and the Chief Superintendent's annual report\* for the year ended June 30, 1953, indicates the new functions and scope of the Laboratory. Broadly, they are the application of scientific knowledge and research in problems arising in design, development, manufacture, inspection, storage and use of defence material. They include the provision of a scientific advisory service and the research required to provide a sound basis for such service. Its standardizing work is based on sub-standards verified in terms of the national standards held by the National Standards Laboratory, Sydney, and the staff also participate in specification drafting work of the Standards Association of Australia. The testing work involves the use of an extensive range of measuring instruments of proved accuracy.

Among investigations to which reference is made in the present report are detailed studies of the direct production of polymeric butyl titanate on a pilot-plant scale, giving yields of more than 80 per cent. Pigmentation of this polymer with zinc dust gives a paint with outstanding anti-corrosive properties, particularly under marine conditions, and anti-fouling paints based on such polymers pigmented with copper oxide and mercuric oxide are also being developed. Further progress has been made in the study of indigenous drying oils, and five new paint-exposure sites were brought into use during the year. Oxidation tests and the oxidizing characteristics of mineral oils are being studied with the view of establishing tests for identifying the type of an oil, and studies are being made of type and degree of damage in flax, jute and sisal fibres due to fungal and other agencies. The ebullioscope method of determining the molecular weights of polymers has been used extensively in the preparation of polymers of butyl titanate and styrene, and some experience was gained in the preparation of cellular (foamed) plastics.

In metallurgical chemistry a rapid test was developed for detecting porosity in nickel coatings on zinc-base die coatings, and much work was done on anodic passivation phenomena encountered in the anodic etching of low-alloy steel in dilute sulphuric acid. Chromate has proved to be a satisfactory inhibitor of corrosion in a spray-tower heat-exchanger circuit, and work was completed on some aspects of the mechanism of corrosion inhibition on mild steel in dilute sulphuric acid solution when very small amounts of organic inhibitors are added. A modified procedure was developed for determining phosphorus in all classes of iron and steel. In crystal physics more attention is now being given to long-

\* Research and Development Branch of the Department of Supply, Commonwealth of Australia. Annual Report of the Defence Standards Laboratories for the Year ended 30th June, 1953. Pp. 56. (Maribynong, Vic., Alexandria, N.S.W., and Finsbury, S.A.: Research and Development Branch, Department of Supply, 1953.)