

## THE NATIONAL SCIENCE FOUNDATION, WASHINGTON

## ANNUAL REPORT

THE tenth annual report of the National Science Foundation, covering the year ended June 30, 1960\*, follows the pattern of the previous two reports. Besides the Director's statement and the chapter reviewing the Foundation's programmes for promoting basic research and education in the sciences (see p. 473) nearly half the report reviews the work of the Foundation during the year. The remaining half of the report consists of appendixes listing the members of the National Science Board, the Foundation's staff, committees and advisory panels, the grants made for basic research and other purposes, fellowship awards, publications, and the financial report.

Grants for research totalled 78 million dollars and the report summarizes briefly the programmes supported through the Foundation's Divisions of Biological and Medical Sciences, and of Mathematical, Physical and Engineering Sciences, its Office of Social Sciences, which for the first time operated for the full year; and, through the Office of Special International Programmes, in the Antarctic. Significant research developments in the year which are noted are the total synthesis of chlorophyll, the study of factors regulating behaviour in man, the discovery of the first synthetic antigen, the isolation and identification of the acetylcholine receptor protein from the electric tissue of the electric eel, the study of gravity response dependent on hereditary factors and the discovery that sub-units of a gene are arranged linearly within a gene. Progress has been made in determining the mechanism of action of vitamin B<sub>12</sub>, the feasibility of studying bargaining behaviour in bilateral monopoly situations under controlled laboratory conditions has been demonstrated, and an archaeological study of eastern Arizona has discovered evidence of a primitive people without pottery and probably without agriculture living in the midst of other tribes with far more advanced culture. A sensitive infra-red analyser has been applied to the measurement of atmospheric carbon dioxide, various isotope techniques are yielding important results in the study of undisturbed cores of sediment from the ocean bottom and a photoelectric image intensifier is giving significant help to astronomers.

Of the 1995 research grants made during the year, 891, totalling nearly 25 million dollars, were for biological and medical sciences; 916, totalling 31.5 million dollars, were for mathematical, physical and engineering sciences; 109, amounting to more than 2 million dollars, for social sciences, and 79, amounting to more than 3.5 million dollars, for Antarctic research.

During the year, in its seven fellowship programmes, the Foundation made 4,010 awards totalling 13.5 million dollars, of which 1,200 were pre-doctoral, 1,190 co-operative graduate fellowships, 580 summer fellowships for graduate teaching assistants, 180 post-doctoral fellowships, 75 senior post-doctoral fellowships, 285 science faculty fellowships for teachers, and 500 summer fellowships for secondary school teachers of science and mathematics. The Foundation

also supported 649 institute programmes during the year. Of these, 412 were summer institutes attended by 22,000 teachers; 33 were academic-year institutes for 1,500 teachers and 209 were in-service institutes, attended by some 9,000 teachers on a part-time basis. Special projects in science education included programmes for secondary schools to foster interest in, and understanding of, science, mathematics and engineering, travelling science libraries, grants for visits of outstanding scientists to secondary schools, as well as special science demonstration lectures for secondary schools and a science clubs programme. Other programmes were concerned with undergraduate science education and supplementary training for teachers of science and the improvement of the content of courses.

The Scientific Man-power Programme of the Foundation makes available information on the resources of scientific technical personnel in the United States. A comprehensive report on the status of the scientific and technical man-power register, the Foundation's studies in this field and its projected plans for the future, was issued in January 1960. The Foundation's responsibilities in the dissemination of scientific information have also been extended, and besides endeavouring to improve the existing information services, the Foundation, through its Office of Scientific Information, is promoting a national research programme for developing techniques for handling information. As part of this effort it is vigorously fostering the co-ordination of effort in this field, both within the Federal Government and among private and professional organizations, while on the international level the Foundation has co-operated with the International Federation for Documentation and the Abstracting Board of the International Council of Scientific Unions; and has, with the European Productivity Agency, studied means for establishing a European Translations Centre. Projects in this field assisted during 1960 include a large-scale test programme at Western Reserve University for evaluating procedures developed for the automatic processing and searching of metallurgical literature; a programme on mechanization of processing and searching chemical literature, including research on the semantics of chemical literature; and the investigation of large files of information with a multi-level structure and self-organizing capability at the Electrade Corporation.

The Foundation, mostly through scientific societies, supports the translation, in whole or in part, of 45 Russian periodicals, and, in November 1959, sponsored a conference of editors and officers of 28 professional societies and academic institutions translating such periodicals to discuss means for improving the dissemination of translated periodicals among scientists in the United States. A series of national surveys on media of scientific communication was also launched, and some experiments with new publication techniques and methods were supported. The Foundation is now authorized to support international activities which may improve education in science in the United States.

\* National Science Foundation, Washington. Tenth Annual Report for the fiscal year ended June 30, 1960. Pp. xiii + 310. (Washington, D.C.: Government Printing Office, 1961.) 1 dollar.