THE NUFFIELD FOUNDATION

ANNUAL REPORT

THE ninth report of the Nuffield Foundation* covers the year ended March 31, 1954, when the Foundation's second five-year programme terminated, in which allocations totalling £594,302 brought the total of grants during the quinquennium to more than £3 million, and that since the Foundation was established in 1943 to more than £5 million. Grants in the United Kingdom during the year included £18,938 from the Foundation's uncommitted resources, or 'free fund', £104,450 for biological studies and £120,445 for sociological studies. £189,428 was allocated for research in the Commonwealth overseas, £46,400 for research into practical problems, £51,080 for the care of old people, £46,178 for miscellaneous projects and £27,226 for the continuation of its past programme, while a further £10,000 was allocated to the Oliver Bird Fund.

Reviewing first, however, the past quinquennium as a whole, the report notes that of £3,031,526 allocated in 1949–54, £441,897 was for biological and £376,188 for other scientific studies and £416,555 for social research in the United Kingdom. £396,080 was for the care of old people and £146,070 for research on rheumatism, while the programme of training and travelling fellowships and similar awards received £515,056. During the quinquennium, while continuing its provision of scholarships designed to encourage travel for study within the Commonwealth, the Foundation has thought it opportune to extend help for research to institutions and people in overseas parts of the Commonwealth, where private-adventure money is more keenly needed, sought and valued. The latest allocation has been one of £250,000 for certain university colleges in the Colonial territories, and the Foundation hopes that on an expanding scale it may devote its attention to overseas parts of the Commonwealth, where growth is still young and vigorous and experiment is necessarily the order of the day.

Another innovation during the quinquennium has been the decision, in the light of an investigation into hospital functions and design, to establish for ten years a division for architectural studies as part of the Foundation's headquarters organization. The immediate programme of the new division includes the study of children's hospitals, research laboratories and farm buildings.

During the coming five years, the Foundation hopes to make its major contribution to the support of research in the United Kingdom in science, medicine and technology. In science its present preference and programme for biology will continue but on a reduced scale; and within the natural sciences the Foundation will be watchful for opportunities of encouraging those workers capable of devising the new concepts, tools or techniques from which unpredictable, but invaluable, advances may ensue. In medicine, the Foundation intends to build up further two or three existing centres of research on the chronic rheumatic diseases and will maintain a special interest in investigations into the causes of those mental and physical defects which throw so heavy a burden on the family and the community. In technology, besides agriculture, architecture, food and domestic science, the application of science to industry and fundamental applied science, the Foundation is ready to retain an interest in the shortage of scientists and able persons generally, and particularly in the shortage of science teachers in schools.

In the social sciences, the Foundation will be concerned to encourage fundamental research as well as studies of major social developments effected by legislation or similar means, urban studies, further work on social mobility and the problem of local government. Besides encouraging the collection and collation of facts about old people, the Foundation will be ready to assist research in the employment of elderly workers and into the process of ageing. All the current fellowship schemes are being continued; but some will be replaced during the quinquennium by new and experimental schemes.

Both new grants from the Foundation's 'free fund' during the year are in the medical field: £6,000 for accommodation for a gastro-enterological research centre at the Central Middlesex Hospital, and £2,500 to the Department of Surgery at the Postgraduate Medical School of London for the construction of a second and improved heart–lung machine. An additional £5,000 has been allocated to the Mathematical Laboratory, University of Cambridge, for the construction of an electronic calculating machine and a further £5,000 reserved for another year.

In the biological sciences, grants were made for twelve new projects and for ten additional or renewed projects. New grants include £12,000 over four years to the Department of Botany, The Queen's University, Belfast, for quaternary ecological studies; £10,000 over five years to the Botanical Society of the British Isles towards the preparation of a distribution atlas of British flowering plants, and £10,000 to the Cavendish Laboratory, University of Cambridge, for the purchase of an electron microscope of high resolving power; £4,300 over two years for work on population genetics at the Department of Social and Preventive Medicine, The Queen's University, Belfast; £3,200 over four years to the Department of Zoology, University of Edinburgh, for special equipment and technical assistance in work on developmental energetics; and £2,500 a year for three years for additional research assistance and materials for the work on vitamin A and the metabolism of sterols in the Department of Biochemistry, University of Liverpool. An additional £1,500 has been contributed to the biophysical work at the Wheatstone Physics Laboratory, King's College, University of London, £2,400 over three years for research at University College, London, on electrical changes in central nervous tissues, a further £7,950 over three years for the investigation at University College, London, into proliferation and morphogenesis in the adult, and a renewed tapering contribution of £2,400 a year for the first three years and £1,200 a year for the last two years for the work on cell biology at the Strangeways Research Laboratory, Cambridge. Further sums of £2,000 a year for equipment and materials and £650 a year for two years for an additional assistant physicist have been

* Nuffield Foundation. Report for the year ended 31 March 1954. Pp. 141. (London: Nuffield Foundation, 1954.)

offered to the Department of Physics Applied to Medicine, Middlesex Hospital Medical School, for the study of the mineral activity of adrenal steroids.

Six of the twelve grants made for sociological studies during the year were new. One of those, of £4,500 over two years, is for an inquiry being conducted by the Institute of Community Studies, London, into various aspects of ageing in relation to family life and care within the family. Another, of £3,000 a year for three years, is to the Institute of Education, University of London, for an inquiry into the social characteristics of the teaching profession, including the changing geographical and social sources of recruitment to the teaching profession in England and Wales, and the relation of its origins to characteristic features of its way of life. A grant of £3,000 over two years has also been made to the Royal Institute of Public Administration for an inquiry into alternative sources of local revenue the results of which should greatly assist in deciding upon the character of the local government reforms required in Britain. Two grants have been made to the Institute of Social Anthropology, University of Oxford: one of £1,000 for a study in Cyprus and the other of £1,500 over three and a half years for a structural analysis of the State of Israel, with special regard to its position as a Middle Eastern nation.

Renewed or additional grants in this field include £3,600 over three years for research of the 'operational' type at the Department of Social Science, University of Liverpool, for the continuation of studies on community and race-relations. A grant of £10,000, tapering from £3,600 in the first year to £400 in the fifth, has been offered to the Division of Research Techniques, London School of Economics and Political Science, for current field-research on methods of reducing the cost of random sampling, the variability between interviewers, the design of questionnaires and social classifications and their use in sampling inquiries. £8,000 goes to the Institute of Statistics, University of Oxford, for a third national survey of income and savings and a further £2,500 over two years to the Department of Psychology, University of Reading, for continuing its work on visual aids to learning. A renewed grant of £2,000 a year for two years to the Department of Town Planning, University College, London, will enable the main results so far reached in case-studies of three local planning authorities to be tested against comparable material from other authorities.

Of two new grants from the Oliver Bird Fund made during the year, one of £20,000 (since increased to £27,000) is to provide and furnish a new building for the Rheumatic Unit at the Northern General Hospital, Edinburgh, while since the end of the financial year covered by the report the Foundation has offered a further £70,000 over eight years to the Rheumatism Research Centre at the University of Manchester, £8,000 to the University of Sheffield for a research fellowship in the Sheffield Centre for the Investigation and Treatment of Rheumatic Diseases and £6,000 to the Oxford Regional Hospital Board for work on the pathogenesis of rheumatic diseases at the Rheumatic Diseases Research Centre, Stoke Mandeville Hospital.

Apart from the grants for new developments in university colleges in the Colonial territories already noted (and which for Ibadan and the West Indies have already led to agreed schemes), the Foundation allocated £19,821 during the year for expenditure, preferably on biological research, in Australia, New Zealand and South Africa, and £20,475 for four projects in other parts of the Commonwealth. The former includes £2,480 over two years to the University of Sydney for fundamental work in the Department of Organic Chemistry on the biogenesis of natural products, using radioactive tracers, £9,760 over three years for a programme of twin studies at the Walter and Eliza Hall Institute of Medical Research, Melbourne, and £750 a year for three years to the University of the Witwatersrand for research on cardiac surgery in general and mitral disease in particular. Up to £2,000 has been offered to the Aden Protectorate for the advancement of a modern health service, and £1,600 over three years to the University College of the West Indies for an inquiry into the Collembola of Jamaican soils.

Four new grants for research into practical problems, totalling £45,200, and which involve bringing together people from two or more disciplines, were made during the year. A grant of up to £6,500 a year for three years to the Social Rehabilitation Unit at the Belmont Hospital, Sutton, is for an intensive study of the social and cultural background of a series of cases of psychopathy treated in the Unit. £15,000 has been allocated over two years for an independent study of the impact of television on children and young people, and the Foundation has offered £700 for equipment and £1,400 a year for five years to University College, London, for a study of skill in heavy manual tasks by the Departments of Physiology and Psychology.

The miscellaneous projects to which the Foundation allocated £46,178 during the year include grants of £1,000 towards the cost of the Third Congress of the International Association of Gerontology, £2,000 for an industrial accidents survey by the Central Middlesex Hospital and £15,000 over five years to establish a day-centre for the permanently disabled under the supervision of Dr. F. S. Cooksey, of King's College Hospital. New grants for the care of old people include £3,000 a year for three years to the University of Bristol for field-experiments on the employment of elderly workers, £1,500 a year for five years to the Geriatric Unit, Sunderland General Hospital, for a study of physiological and pathological changes in the aged and ageing and £1,750 a year over three years to Cowley Road Hospital, Oxford, for an investigation in the geriatric unit of the mental deterioration of the elderly.

The Royal Society and Nuffield Foundation Commonwealth bursaries scheme established in 1953–54 is designed to complement the Foundation's other awards, more especially by encouraging able young scientists from Great Britain and overseas to work with leaders of research in other overseas parts of the Commonwealth. The scheme is to run for an experimental period of five years, during which the Foundation will contribute £5,000 a year with an initial contribution of £2,500 from the Royal Society. The medical fellowships are being continued on a reduced scale and the dental fellowships and scholarships, biological and sociological scholarships and bursaries are also being continued. The scheme of travelling fellowships for home Civil servants has been renewed for a second five years; but the travelling scholarships and bursaries for United Kingdom farmers will terminate in April 1956.

Grants in continuation of the past programme include £1,000 a year for three years for the investigation of changes which occur at birth in the circulation and

breathing of lambs, £13,200 to the Department of Physics, Birkbeck College, University of London, for two research fellowships for three years for work on protein and virus structure, and £15,000 over five years to the Nuffield Research Group in the Department of Metallurgy at the Imperial College of Science and Technology, University of London, to tide the group over the time until full support is forthcoming from industry and the College for its work on the theory and practice of the extraction of metals from ore.

THE MINING INDUSTRY IN BRITAIN

INTERESTING human documents, though written primarily as the technical record of the work of the Mines Inspectorate in England, are a series of separate reports of the divisional inspectors of five divisions*. Though ostensibly all written with the same objective, they have a refreshing variety, and are indications of the widely differing characters of the separate coalfields, which have required from a centrally controlled authority differences of approach appropriate to local conditions and practices.

Naturally one's first search among these pages must be for the signs of improvement in the statistics of the killed and injured each year that must inevitably, one would think, take place as the result of the considerable attention that is given to the problem of safety. In some divisions one finds an encouraging record of betterment; in others there are to be found an almost discouraging fluctuation of figures from one year to another that must have some deep-seated causes. On reading the separate reports, it very soon becomes apparent that the character of the pits varies widely—thin seams and thick seams, high standards of mechanization, less-developed ones, and wide differences in the character of the mining problems. Perhaps the common problem is the stubbornness of human nature, shown in the repeated instances of accidents due to individual carelessness that has resulted in neglect of regulations framed for their prevention. The major sources of fatal accidents are falls of roof and haulage breakdowns, particularly runaways.

Interesting to the layman in these reports are the many references to the development of new methods and appliances culled from a wide field of experiment carried out both in and outside the industry of coal mining—thus the colorimetric testing of coal dust, the new developments of electric haulage, the ever-advancing character of the new devices for dealing with roof support, the vital problem of the miner, and the many new types of machine for coal cutting. The introduction of machine mining has brought in its train new problems in dust suppression. Following the experience which many mining engineers have had of the effect of water on the mining of coal, there is growing up a body of opinion which believes in this development, which must reduce the use of coal-cutters and shot firing and thus reduce the production of dust. In this application a long hole parallel to the coal-face is drilled, filled with explosive, and then high-pressure water admitted, the objective being to soften the coal.

In spite of all the research and care taken in mine air analysis and other precautions, explosions of fire damp still occur—a pertinent reminder that in no branch of mining technology can it be said that all the problems have yet been solved.

On the surface and underground, good progress has been made in the improvement of the standards of illumination. The removal of glare and shadows is an important feature of such advancement.

Health and welfare, training and education occupy an essential place in the manifold activities of the mining industry. Finally, it is interesting to note that the first electrically driven, horse-cleaning vacuum equipment operated by a certified flame-proof motor and switchgear was installed at the beginning of the year in the underground stables, 3,000 yards from the pit bottom at Hamstead Colliery. Should it be called an equus-cleaner?

R. J. Sarjant

* Ministry of Fuel and Power. Reports of H.M. Inspectors of Mines under the Coal Mines Act, 1911, for the year 1953. North Eastern Division. By C. W. Scott. Pp. ii+30. 2s. net. West Midland and Southern Division. By J. E. Henshaw. Pp. ii+24. 1s. 6d. net. Northern Division. By W. Brown. Pp. ii+30. 1s. 6d. net. North Western Division. By G. Hoyle. Pp. ii+26+5 plates. 2s. net. East Midland Division. By W. B. Brown. Pp. ii+20. 1s. net. (London: H.M. Stationery Office, 1954.)

OVERSEAS FOOD CORPORATION

ANNUAL REPORT

THE Overseas Food Corporation is now concerned solely with investigations, first to ascertain experimentally crop and stock potentialities, with their cultural and husbandry requirements; second, to determine their practical limitations and economics, by applying the findings of the specialists to large-scale trials by farmers; and third, by incorporating in the large-scale trials variations in farming methods, to ascertain which form is likely to prove most productive and yield the greatest return as and when the area is developed. The annual report and statement of accounts for the year ended March 31, 1954*, record steady progress under the first heading. The continued soil surveys, soil fertility studies and the fertilizer experiments are revealing the percentages of the various soil types to be found in the areas, their suitability to the range of crops under trial, their mechanical condition and their response to fertilizer treatment. Considerable progress has been made in the study of rosette disease of groundnuts, and that on the mechanism of resistance of Mwitunde to rosette disease indicates reasonable hopes of selecting a strain combining high yield, low aphid reproduction, low percentage of infective aphids and perhaps some tolerance to the usually severe effect of the virus on yield. Indications are that groundnuts may become an important crop in the rotation at Nachingwea and merit further trial at Urambo in the 1955–56 season.

The second type of investigations was severely checked by the drought throughout Tanganyika during the 1952–53 crop season; but much information was obtained on methods of cultivation desirable under dry-farming conditions. Variations in the third class included experiments with farms of 2,000 acres, 1,500 acres and 1,000 acres, fully mechanized and under European supervision, to determine the pattern of farming best suited to local conditions and the most economical size, while the possibilities of improving peasant farming on a group basis are being examined under the African Tenant Scheme.

* Overseas Food Corporation. Annual Report and Statement of Accounts for the year ended 31st March, 1954. Pp. iv+70. (London: H.M. Stationery Office, 1954.) 2s. 6d. net.