

niques for the examination of metals with the electron microscope. In 1949 he was appointed demonstrator and in 1954 lecturer in the Department of Metallurgy, University of Cambridge—an appointment he held until 1960, when he returned to the University of Leeds as professor of metallurgy in the Houldsworth School of Applied Science. During his work at the Cavendish Laboratory he became convinced that the electron microscope could be more widely applied to problems in metallography. On transferring to the Metallography Department in Cambridge he had the opportunity of testing his convictions, and together with a group of research students a wide variety of metallographic problems was investigated.

#### Paul Instrument Fund Committee Grants

AWARDS of grants by the Paul Instrument Fund Committee have been made as follows: £1,550 to Dr. E. T. Hall, director of the Research Laboratory for Archaeology and the History of Art, Oxford, for the design and manufacture of a recording instrument combining a drum recorder and servo transmitters with a spectrometer to give a direct reading of wavelength; £3,900 to Dr. P. B. Hirsch, lecturer in physics, University of Cambridge, for the construction of an electron optical instrument which will measure the energy distribution of the electron beam passing through small areas (diameter less than  $1\mu$ ) in the crystal specimen which can be observed and selected on the electron microscope image; £3,000, in supplement of a previous grant, to Dr. H. Motz, Donald Pollock reader in engineering sciences, University of Oxford, for the construction of a linear accelerator working at 1.6 cm. (*J*-band); £2,284 to Mr. B. M. Turner, who is working in the Department of Zoology and Comparative Anatomy, Oxford, for the further development of micro-scale chromatography and electrophoresis techniques.

The Paul Instrument Fund Committee, composed of representatives of the Royal Society, the Institute of Physics and the Physical Society and the Institution of Electrical Engineers, was set up in 1945 "to receive applications from British subjects who are research workers in Great Britain for grants for the design, construction and maintenance of novel, unusual or much improved types of physical instruments and apparatus for investigations in pure or applied physical science".

#### U.S. Scientists in Universities and Colleges : 1958

A PRELIMINARY report on scientists and engineers engaged in research and development in colleges and universities in the United States for 1958, issued by the National Science Foundation (*Reviews of Data on Research and Development*, No. 27; April 1961), gives the number of those engaged as 69,919 in 377 colleges and universities, or 44 per cent of all scientists and engineers employed at colleges and universities in 1958, and the expenditure as 736 million dollars, compared with 410 million dollars in 1954. Of these, 47 per cent were employed in the biological sciences, 26 per cent in the physical sciences, 17 per cent in engineering sciences and 10 per cent in the social sciences. Operating expenditure for separating budget research and development at the universities and colleges accounted for 45 per cent of the total expenditure on research and development, agricultural experiment stations for 16 per cent, and Federal Contract Research Centres for 39 per cent. Sixteen institutions employing 1,000 or more employed 31,260

of this total of scientists and engineers, and twenty institutions with 500–999 another 14,026, while 206 institutions employed fewer than 25 scientists and engineers. While the total faculty engaged in research and development only rose by 3 per cent between 1954 and 1958, the number of faculty engaged full-time in research and development increased by 49 per cent.

#### Production of Gas from Coal in Britain

IN a written answer in the House of Commons on June 23, the Minister of Power, Mr. R. Wood, said that he had accepted the advice of the Wilson Committee that town gas offered the greatest scope for expansion in making gas, oil and chemicals from coal, but that new plants would be required to make gas more cheaply. He had therefore decided, in agreement with the Gas Council and the National Coal Board, to accept the recommendations that the development of high-pressure slagging gasifiers should be pursued; that the Gas Council should be responsible for further work on the standard Lurgi gasifier using British coals, on the Otto–Rummel gasifier and on any further gasifiers suitable for town gas, as well as for development on slagging gasifiers; and that the National Coal Board should be responsible for work on producer gas plants. He also accepted the Committee's view that the prospects of making oil from coal economically in Britain are so remote that no further technological work on the development of this process should be undertaken at present. The Department of Scientific and Industrial Research had accordingly terminated its development work on this process, but was continuing basic investigations on catalysis and keeping in touch with developments in making oil from coal. The Minister said that his Department, which had been carrying out research and development on the slagging gasification of coal as a raw material for oil synthesis, would continue this work until March 31, 1962, when the Gas Council would be responsible for all work in this field. The Gas Council and the National Coal Board were making a joint economic study of the possibilities of the Lurgi process which might later be extended to include slagging gasification. This study would define the scope for further developments of the process and provide a basis for further co-operation between the Gas Council and the Board in the total gasification of coal.

#### Research on West Indian Volcanoes

GEOLOGICAL work is in progress on volcanoes in the West Indies, by the Department of Geology and Mineralogy, University of Oxford, in co-operation with the Seismic Research Unit of the University College of the West Indies. In view of the large amount of geophysical data available on this region, it is desirable that a detailed petrological study of the volcanic rocks of the British Leeward and Windward Islands be undertaken. A succession of Oxford graduate students will work on specific problems during the next five years, under the supervision of Prof. L. R. Wager and Dr. G. M. Brown (University of Oxford) and with assistance in the field by Dr. G. R. Robson (Seismic Research Unit) and Dr. P. H. A. Martin-Kaye (Government Geologist, Windward Islands). Their work will include mapping of the structure of the volcanoes and the recognition and classification of the various phases of recent volcanic activity. Petrological and mineralogical