

The shortage of sulphur has stimulated inquiry into new sources. The possibility of using micro-organisms for sulphur production from indigenous sulphates is being examined by the Microbiology Section. In June 1950 two members of the Section examined some sulphur-producing lakes near El Agheila in the Cyrenaican desert; they found that the formation of sulphur was due to the combined action of sulphate-reducing and photosynthetic sulphide-oxidizing bacteria. Details of the expedition, illustrated by maps and photographs together with many of the samples actually obtained, were exhibited. Of special interest was a demonstration of the production of sulphur by the symbiotic action of pure cultures of the two types of organisms isolated from the Cyrenaican lakes in a

medium containing sulphate as the sole sulphur source.

Included in the Microbiology Section is the National Collection of Industrial Bacteria. Although still in its formative stage, the Collection now maintains more than five hundred strains. Its usefulness is indicated by the increasing world-wide demand for its cultures; last year, more than four hundred strains were supplied to twenty-seven countries. The multifarious activities involved in maintaining cultures were demonstrated, for example, the technique of vacuum freeze-drying; diagnostic bacteriological and biochemical tests used for identification and classification; card index system; package and storage. The use of specific types of bacteria for the assay of antibiotics was illustrated.

## NEWS and VIEWS

National Science Foundation, Washington:

Dr. Paul E. Klopsteg

PROF. PAUL E. KLOPSTEG, professor of applied science and director of research of the Northwestern Institute of Technology, has been appointed assistant director of the National Science Foundation for the Division of Physical, Mathematical and Engineering Sciences. Dr. Klopsteg, formerly president of the Central Scientific Company, has long been associated with the administration of research. During the Second World War he served with the Office of Scientific Research and Development as chief of Division 17, Physics and Special Devices, of the National Defense Research Committee, which developed important equipment and devices for war-time use. Notable among the Division 17 developments were the three 4,000,000-volt X-ray machines built by the University of Illinois under contract with the Office of Scientific Research and Development, and the high-voltage Van de Graaff machine developed under contract with the Massachusetts Institute of Technology for the X-ray inspection of heavy military equipment. Later in the War, Dr. Klopsteg was appointed assistant chief of the Office of Field Service, which organized the supply of scientific consultants to the various theatres of war; in this capacity he was made chief of the Research Division, General Headquarters, Southwest Pacific Area in Australia and New Guinea in 1944. Dr. Klopsteg was awarded the Medal for Merit with Presidential Citation for his war-time work. Continuing his association with Federal research activities since 1945, he has been a member and chairman of the board of governors of the Argonne National Laboratory, operated by the University of Chicago under contract to the U.S. Atomic Energy Commission. Dr. Klopsteg has been director and treasurer of the American Association of Physics Teachers and chairman of the executive committee of the American Institute of Physics. In his leisure he has studied archery, and he is an honorary member and former chairman of the board of governors of the National Archery Association in the United States.

George Francis FitzGerald Centenary

THE Royal Dublin Society will hold a special scientific meeting at 4 p.m. on October 30 to mark the centenary of the birth of George Francis FitzGerald. FitzGerald played a prominent part in many branches of theoretical physics during the last two

decades of the nineteenth century, and was the first to show that the generation of electromagnetic waves by oscillating electric circuits was theoretically possible, a prediction verified a few years later by Hertz. He is probably best remembered to-day as one of the authors of the FitzGerald-Lorentz contraction hypothesis, a forerunner of the theory of relativity, which he and Lorentz put forward independently to explain the null result of the Michelson-Morley experiment. The meeting will accordingly be devoted chiefly to the presentation of communications dealing with some modern views on relativity theory. These will include the following papers: Dr. H. E. Ives, "The FitzGerald Contraction"; Prof. W. H. McCrea, "The FitzGerald-Lorentz Contraction—some Paradoxes and their Resolution"; Dr. G. J. Whitrow, "The FitzGerald-Lorentz Contraction Phenomenon and Theories of the Relativity of Galilean Frames"; Prof. J. L. Synge, "Effects of Acceleration in the Michelson-Morley Experiment"; and Prof. F. E. Hackett, "FitzGerald as revealed by his Letters to Heaviside". It is hoped that in addition Dr. E. H. Alton, provost of Trinity College, Dublin, and Prof. H. H. Dixon will contribute personal reminiscences of FitzGerald.

Training of a Technologist

IN his Redwood Lecture "The Training of a Technologist", delivered to the Institute of Petroleum on October 3, Prof. F. H. Garner, professor of chemical engineering in the University of Birmingham, emphasized the importance of the applied scientist possessing, besides his technical knowledge, some understanding of the human mind, personal qualities of leadership and the knowledge of how to handle men, which can be gained only by personal contact and not through books. Prof. Garner did not agree that education should be based solely on the humanities, but he pointed out that the defects of such an education, particularly when it includes no training in science nor any scientific background, is due at least in part to the decay of the religious element and the Christian ideals or philosophy which, until the Edwardian era, had a more marked influence than the classical philosophies. There has been a violent change with our traditions, and it is always desirable that in traditions the rate of change should be slow. This is one of the real reasons why the educated part of the community is proving unfitted to deal with the problems of to-day;