

its inception, and played a prominent part in recruiting scientific personnel and initiating their work. During the following twelve years he displayed outstanding leadership in researches concerned with the physical structure of coal and with the mechanism of its combustion. Previous approaches had been made by the analytical chemist and the geologist; Bangham followed the line that bright coal was a solid colloid, or an assembly of small particles too small to be visible under the microscope and imparting to the lump a porous structure. This conception has led to a model adequately accounting for the variation with rank of the properties of different coals. It has also been of great assistance in elucidating the complicated phenomena associated with solid fuels undergoing combustion; for example, 'reactivity'.

Two days before he died, Bangham was able to peruse a new work, "Progress in Coal Science", which he had edited; this work is a fitting memorial to his great ability and activity in editing for publication the considerable output of the British Coal Utilization Research Association.

Bangham was a great gentleman and a loyal colleague, whole-heartedly devoted to science and its industrial applications; and he gave much in exchange for little. Towards the end he fought against ill-health with a gallantry that evoked the esteem of all who knew him intimately; and he will be sorely missed. He leaves a widow, two sons and a daughter.

D. T. A. TOWNEND

Mr. William Birtwhistle

MANY visitors to the Cavendish Laboratory will have met Willie Birtwhistle, whose death occurred on September 25. For the past twenty years he had cared for the high-voltage accelerator of the Laboratory. He was trained in electrical engineering, and we were fortunate in being able to bring him to Cambridge when we started to build our proton accelerator in 1930. We had to instal a high-voltage transformer and exciting equipment, to build a voltage multiplying rectifier and accelerating tubes, and to apply the new technique of fast oil-diffusion pumps to our work. In all of this, Birtwhistle played a major part. A good deal of time had to be spent

on finding leaks in the numerous seals which were then made by the use of low vapour-pressure 'Plasticine' developed for the work, and we will always remember the patience and care with which Birtwhistle thumbed the joints until the diffusion-pump spark discharge turned from pink to green and then finally to black.

In all the experimental work during 1932-37 with Dee, Gilbert, Lewis, Walton and myself, Birtwhistle took a full part. He always used to know what an experiment was about without being told, and he had always a very good sense of what was wrong when any trouble developed.

When the new high-voltage laboratory of the Austin Wing was built, he moved to the new laboratory and built and installed to Dee's design the one-million volt accelerating tube which worked with the Philips cascade generator. During the difficult years of the War the laboratory was kept going steadily for the work of the atomic energy project, and the return to academic work in 1945 was greatly helped by the loving care with which it had been tended.

Birtwhistle was a typical north countryman with a quiet humour and Yorkshire accent which was a pleasure to listen to. His patient ways and sound experimental sense inspired confidence in research students and helped many of them over their difficulties. He was a keen collector of stamps, and many research students who went overseas added to his collection.

Experimental physics owes much to its research assistants, and Willie Birtwhistle will take his place in their honoured roll.

J. D. COCKCROFT

WE regret to announce the following deaths:

Sir Sidney Harmer, K.B.E., F.R.S., director of the British Museum (Natural History) during 1919-27, on October 22, aged eighty-eight.

Prof. S. Sugden, F.R.S., professor of chemistry at University College, University of London, on October 20, aged fifty-eight.

Prof. Emil Votoček, emeritus professor in the Czech Institute of Technology, Prague, known for his work in organic chemistry, on October 11, aged seventy-eight.

NEWS and VIEWS

Cedergren Medal for 1949: Prof. R. Rüdénberg

PROF. REINHOLD RÜDENBERG, Gordon McKay professor of electrical engineering in Harvard University, has been awarded the gold Cedergren Medal and Scroll for 1949 for highly meritorious work in the field of electrical engineering. The Medal was founded by the Stockholm General Telephone Co. in memory of Henrik Tore Cedergren, director of telephony, and is awarded every five years for work in the art and science of electricity by the Royal governors for the universities of technology in Sweden. Prof. Rüdénberg, who is the eighth recipient of the Medal, was born in Hannover in 1883 and studied engineering at the Hannover Institute of Technology. He was an honorary professor at the Institute of Technology in Charlottenburg while he worked as chief electrical engineer of Siemens-Schuckertwerke in Berlin during 1923-36. He went to Harvard in 1939. In 1912 Prof. Rüdénberg was awarded the Montefiore Prize of the

University of Liège for research on commutator machinery and in 1946 received an honour award medallion from the Stevens Institute of Technology for his work in connexion with the invention of the electron microscope.

Names of Chemical Elements

THE names of chemical elements have been under consideration at the fifteenth congress of the International Union of Pure and Applied Chemistry which took place in September 1949 at Amsterdam. The report of the Congress is now available (*Siège de l'Union, 28 Rue Saint-Dominique, Paris, 7e*). The Commission on Inorganic Chemical Nomenclature made the following recommendations, which were adopted by the Union, for the newly discovered elements: Element 43 should be called 'Technetium' (Tc), 61 'Promethium' (Pm), 85 'Astatine' (At), 87 'Francium' (Fr), 93 'Neptunium' (Np), 94 'Plutonium'