in the chemistry of carbohydrates, especially with regard to fructose and its derivatives.

In January 1924 Charing Cross Hospital and Medical School were fortunate and wise to secure his services as their first biochemist and lecturer in chemical pathology. His research activities were chiefly on quantitative aspects of chemical pathology.

In 1938, collaborating with H. W. C. Vines (later professor of pathology at Charing Cross Hospital) and others, he assisted in writing *The Adrenal Cortex and Intersexuality*, and in 1952 he contributed a section to *Recent Advances in Chemical Pathology*. Apart from his main interests, many papers published by other Charing Cross staff acknowledge the assistance he gave to them in their work; indeed, his wise and balanced judgement was widely sought and appreciated by all who came into contact with him.

After the Second World War in 1947, when the preclinical school of Charing Cross was re-established, Prof. Patterson became responsible for the teaching not only of chemical pathology but also of biochemistry. In 1948 the University of London conferred on him the title of professor of chemical pathology. Just previous to his death the University of London conferred on him the title of emeritus professor. He served as vice-dean of the Medical School from 1954 until 1957, served on the School Council, and for many years he was on the Board of Governors of the Hospital. He was a member of the Boards of Studies in Biochemistry and in Pathology and also of the Board of Pre-Clinical Studies of the University of London. After Charing Cross Hospital became associated (in 1959) with the West London and Fulham Hospitals, Prof. Patterson took on the additional responsibility of supervising their chemical laboratories.

Prof. Patterson's hobbies included gardening, and at his home in Chorley Wood he had a beautiful well-kept garden.

In 1926 he married Kathleen (*née* Thompson), who survives him. To her and his son we extend our sympathy.

W. J. HAMILTON

Prof. Wilfred Merchant

PROF. WILFRED MERCHANT, professor of structural engineering in the Faculty of Technology, University of Manchester, since 1957, died on October 12 at the age of fifty-three after a long illness. He was educated at Manchester Grammar School and graduated with first-class honours in engineering science at Oxford in 1933. He then spent a number of years with a large firm of structural engineers.

He held a Commonwealth Fellowship at the Massachusetts Institute of Technology and obtained the degree of M.S. in 1939 with a thesis in soil mechanics. This work was the first rational advance of the general theory of consolidation of clay since its formulation in 1923, and it has recently been recognized that modern treatments of the subject are mathematically equivalent to that in Merchant's 1939 thesis.

During the Second World War, Prof. Merchant was employed by Metropolitan Vickers, Ltd., on the design of jet engines. He made major contributions to the aerodynamic theory of flow through compressor blading. There was very little knowledge or experience of axial flow compressors at that time and his contributions played an important part in the design of jet engines.

Prof. Merchant joined the staff of the Manchester College of Science and Technology, Faculty of Technology in the University of Manchester, in 1946, and was appointed reader in applied mechanics in 1951. After he joined the College his main interests were in the prediction of the failure load of structures taking account of the interaction of plasticity and stability. His intuition led him to propose an interaction formula which is now accepted and known by his name in the literature of the subject. During the past few years he developed computer techniques to carry out the erection calculations for the new Forth and Severn suspension bridges.

He was a member of the Institution of Structural Engineers, a member of the Institution of Civil Engineers and an associate member of the Institution of Mechanical Engineers and of the American Society of Civil Engineers. He served his professional institutions in many ways and was chairman of the Lancashire and Cheshire branch of the Institution of Structural Engineers during 1960–61.

As a teacher he always found time to discuss problems individually with his students. His advice and guidance both to his students and to his colleagues were of great value. His contributions in three major branches of engineering are significant of his wide interests and keen analytical mind.

He leaves a wife, a son and a daughter.

S. S. GILL

Dr. Paul Müller

PAUL MÜLLER, who was awarded the 1948 Nobel Prize for Physiology and Medicine, died in Basle on October 13, 1965, after a short illness.

Paul Müller was born on January 12, 1899, in Olten. His father, who was on the staff of the Swiss Railways (SBB), moved soon afterwards to Basle, and Basle became his home. There, after a spell as laboratory technician, he completed his studies at what was then the Obere Realschule (Modern High School) and then read chemistry at the University under Profs. Fichter and Rupe. In 1925 he took his doctorate with the highest honours, with a thesis on "The Chemical and Electrochemical Oxidation of Asymmetrical *m*-Xylidene and its Mono- and Di-methyl Derivatives". In the same year he joined Geigy as a research chemist, and he stayed with the firm for the rest of his life.

At first he worked on tanning, and developed a number of new synthetic tans. The problem of the preservation and disinfection of animal skins soon turned his attention to biology; and from 1935 he became more and more interested in pest control, a field with which organic chemists at that time had little concern. In the difficult years of the Second World War, when the battle for production was on, he developed and made available to Swiss farmers a mercury-free seed dressing. While still engaged on this development work his interest was turning to insecticides, and with characteristic doggedness he tested large numbers of chemical compounds, at first without success. But in 1939 his perseverance, coupled with his acute perception and methodical approach to all his experimental work, led him to the discovery of the insecticidal properties of dichloro-diphenyl trichlorethane, the active ingredient of DDT, which he developed for practical use. His achievement was to have discovered, at a critical time in the War, an insecticide with a contact and persistent action far and away superior to any other known product. His discovery was used both during and immediately after the War to protect millions of service-men and civilian populations in all countries against epidemic diseases. Apart from their use in hygiene and agriculture, DDT insecticides are still extensively used to-day with success in many parts of the world against the *Anopheles* mosquito, the carrier of malaria. The significance of this great discovery was fittingly acknowledged by the award of the Nobel Prize for Physiology and Medicine in 1948.

In 1963 Müller received an honorary doctorate in the Faculty of Medicine at the University of Thessalonika, in recognition of the beneficial effect of DDT products in the Mediterranean area. He also became an honorary member of the Swiss Nature Research Society and of the Paris Society of Industrial Chemistry.

For all these many distinctions, Paul Müller remained what he had always been: a modest man, outwardly reserved, but with a passionate devotion to science. Even

as deputy head of pest control research at Geigy, he preferred above all else the work of a research chemist. After his retirement in 1961 he continued to devote his energy and enthusiasm to work in his private laboratory at his home in Oberwil, near Basle. He found relaxation in his beloved countryside, in the Jura mountains and the Alps, and in family life. By his death, Basle and its chemical industry, and indeed the world of science, have lost a scientist whose personality and attainments will not soon be forgotten.

NEWS and VIEWS

The Royal Society: Officers

PROF. P. M. S. BLACKETT, emeritus professor of physics, University of London, Senior Research Fellow, Imperial College of Science and Technology, London, and part-time scientific adviser to the Ministry of Technology, has been elected president of the Royal Society in succession to Lord Florey. The new physical secretary is Prof. M. J. Lighthill, Royal Society research professor at the Imperial College of Science and Technology. The new foreign secretary is Prof. H. W. Thompson, professor of chemistry in the Physical Chemistry Laboratory, Oxford. The officers re-elected for the ensuing year were: *Treasurer*, Lord Fleck, formerly chairman of Imperial Chemical Industries, Ltd.; *Biological Secretary*, Prof. A. A. Miles, director of the Lister Institute and professor of experimental pathology in the University of London. Other members of Council elected (or re-elected, marked *) were: Prof. M. S. Bartlett, professor of statistics at University College, London; *Prof. D. H. R. Barton, professor of organic chemistry at the Imperial College of Science and Technology, London; Lord Brain of Eynsham, consulting neurologist to the London Hospital and consulting physician to Maida Vale Hospital; *Dr. F. S. Dainton, vice-chancellor of the University of Nottingham and honorary director of the Cookridge High Energy Radiation Research Centre, University of Leeds; *Prof. K. C. Dunham, professor of geology in the University of Durham; *Prof. G. W. Harris, Dr. Lee's professor of anatomy at the University of Oxford; Dr. S. G. Hooker, technical director (aero), Bristol Siddeley Engines, Ltd.; *Prof. W. O. James, professor of botany at the Imperial College of Science and Technology, London; Dr. J. C. Kendrew, deputy chairman of the Medical Research Council Laboratory of Molecular Biology, Cambridge; Dr. R. D. Keynes, director of the Institute of Animal Physiology, Babraham, Cambridge; *Sir Hans Krebs, Whitley professor of biochemistry at the University of Oxford; *Dr. N. Kurti, reader in physics, University of Oxford, and Senior Research Fellow, Brasenose College; *Dr. K. Mather, vice-chancellor of the University of Southampton; Prof. P. T. Matthews, professor of theoretical physics at the Imperial College of Science and Technology, London; Dr. L. Rotherham, member for research, Central Electricity Generating Board; Sir Solly Zuckerman, chief scientific adviser to the Secretary of State for Defence, scientific adviser, Cabinet Office, and Sands Cox professor of anatomy in the University of Birmingham.

Prof. P. M. S. Blackett, C.H., P.R.S.

THE attainment of the highest scientific honour in the land crowns a distinguished career of more than forty years. Patrick Maynard Stuart Blackett has received many honours. A range of physical research, particularly an intensive study of cosmic rays by the cloud chamber method, led to his election as Fellow of the Royal Society in 1933, the award of a Royal Society Medal in 1940 and a Nobel Prize for Physics in 1948. He has three times served on the Council of the Royal Society—during 1940–42, during 1944–46, when he held the office of vice-president for a year, and during 1963–65. In 1946 he was awarded the American Medal of Merit for his work in operational research, and 10 years later he was again honoured by the Royal Society, receiving the Copley Medal for his work in the fields of cosmic rays and palaeomagnetism.

Blackett began his scientific career at Cambridge in the great days of the late Lord Rutherford. He had achieved an international reputation before he was thirty—a more remarkable achievement in that he started late, for he began life as a sailor. Born on November 18, 1897, Blackett was educated at the Royal Naval Colleges at Osborne and Dartmouth. He served in the Royal Navy throughout the First World War, taking part in the battles of Jutland and the Falkland Islands. His keen interest in science led him after the War to Cambridge, where he studied physics under Prof. Rutherford (as he then was). Blackett graduated in 1921, and 2 years later was made a Fellow of King's College. He worked in the Cavendish Laboratory from 1921 until 1933 when he became professor of physics at Birkbeck College. In 1937 he went to the University of Manchester as Langworthy professor of physics, succeeding Sir Lawrence Bragg who himself had succeeded Rutherford. During his 16 years at Manchester, Blackett presided over and greatly expanded a department which already had a fine tradition. This achievement was repeated by Blackett at the Imperial College of Science and Technology, which he joined in 1953 as professor of physics and head of the physics department, and was responsible for the planning and supervision of the College's fine new Physics Building which was opened in 1960. Perhaps Blackett's most important contribution to the growth of British academic physics during this period was his persuasive support for the College's campaign for a very substantial increase in the number of professors. This trend away from the old European concept of one professor towards the multi-professorial pattern forming a department with a broad field of study is now widely accepted. Blackett has served the Imperial College in many capacities. He was dean of the Royal College of Science from 1954 until 1960 and pro-rector from 1961 until 1963. On his retirement in September 1965, he was appointed a Senior Research Fellow and will continue to have a research laboratory in the physics department.

Blackett and those working with him have made significant contributions to three main fields of physical discovery: the interaction with matter of fast particles from radioactive sources, the nature of the particles in the cosmic rays, and the magnetism of the Earth. During 1921–31 he was chiefly occupied with the development and operation of automatic Wilson cloud chambers and their application to the precise measurement of the parameters involved in collisions between α-particles and atomic nuclei. He photographed for the first time the disintegration of a nucleus. From 1931 onwards he applied and extended the cloud-chamber technique to the study of the collisions involved in the cosmic rays, establishing with Occhialini the existence of showers of nearly equal numbers of positive and negative electrons. From 1947 onwards, Blackett revived interest in the old