

necessary to transmit electrical energy over long distances by means of high-voltage transmission lines. Transmission lines are now operating in Britain at 275,000 volts—such a line can transmit 300,000 kW. over a distance of 200 miles at an efficiency of 95 per cent. Although electrical power transmission practice has reached a high standard, there still remains scope for research with the objects of increasing reliability and reducing cost. At these high voltages, corona discharges may occur on the surface of the conductor as a result of the high electrical stress; this causes a loss of power, the amount of the loss depending on the size of the line conductor and on the weather. Research on corona and other high-voltage problems is carried out on an experimental transmission line at Leatherhead which can be operated at voltages up to 400,000.

The insulation of high-voltage transmission lines presents many problems, particularly in industrial or coastal districts where moist deposits on the surface of the insulators may cause electrical breakdown. Research on the behaviour of insulators under such conditions has been carried out at the Croydon Testing Station for many years. This work has led to a better understanding of the mechanism of insulator breakdown and to the development of improved insulators.

Other aspects of electrical insulation are also of great importance, and work is in progress on insulating materials for switchgear, transformers and cables, again with the objects of improving reliability and reducing cost. Better methods of testing insulation are being developed in the laboratory and applied in service; in this way many serious breakdowns are prevented by detecting and replacing faulty insulation at an early stage.

Research is also in progress on insulating liquids, such as the mineral oil used in transformers and switchgear. The efficacy of anti-oxidants in prolonging the life of the oil is being studied, both in the laboratory and in service.

Lightning is one of the commonest causes of breakdown of overhead transmission systems, and electricity supply authorities in many countries have fostered research on methods of preventing breakdown due to lightning. This research is carried out in co-operation with many organizations in Britain and overseas, and also in the Authority's laboratories, where a 1.4 million volt surge generator is used to investigate surge protective devices and the ability of equipment to withstand high-voltage surges.

Overhead lines are exposed to all weather conditions and are expected to have a life of at least twenty years. It is important, therefore, that corrosion should be prevented so far as possible and, with this in mind, samples of the steel-cored aluminium conductors of the British Grid transmission system have been examined in the laboratory at intervals during the past twenty years. This work has shown that there is some deterioration due to corrosion, particularly in industrial and coastal areas. The causes of various types of corrosion have been elucidated and methods developed of preventing corrosion on new lines by impregnating and coating the conductors with a suitable grease.

As an example of research on methods of utilization, the investigations which are being made on district heating, heat pumps and electrical space-heating may be mentioned. In particular, several interesting in-

stallations with electrically warmed floors have been equipped with instruments which will give a detailed record of the weather conditions, the temperature inside the building and the electricity consumption. In this way, objective data will be obtained on the economics of this method of heating, which has the great advantage of making use of the heat-storage capacity of the floor and also of saving the wall space which would otherwise be required for radiators.

OBITUARIES

Prof. D. T. Barry

PROF. DAVID THOMAS BARRY, emeritus professor of physiology in University College, Cork, was born at Ballyanihan, about thirty miles north of Cork city, in the year 1870. He studied at Queen's College, Cork, graduating M.B. (R.U.I.) in 1894. He first practised in Birkenhead as assistant to an Irish doctor, Dr. Browne, and later on his own. He continued study at the University of Liverpool, where he found physiology of increasing interest. After some years, he handed over his practice to a younger brother and went to London, where he was associated with Starling. Later in Germany he worked with Waldeyer and Kopsch. Barry obtained the M.D. (R.U.I.) in 1903, the diploma in public health (Liverpool) in 1904, and the fellowship of the Royal College of Surgeons (England) in 1907. The same year, on the invitation of the late Prof. Windle, he accepted the chair of physiology at Cork—a post he held for thirty-four years. Before his appointment, physiology was taught as a side-line of anatomy. Barry soon changed its status in the College curriculum. New laboratories were erected and physiology became a separate department which eventually embraced histology and biochemistry.

Barry directed the Physiology Department in Cork, spending about seven months of the year there and the remainder in Paris. His work interested Dr. A. Chauchard, of the Laboratoires Maritimes de Dinard. Through this friendship, Barry made many contacts. He worked with Gley (Collège de France), Richet (École de Médecine) and Lapique (Faculté des Sciences, Sorbonne). He also worked at the Institut Marey, Boulogne-sur-Seine. The French Government awarded him the title of Chevalier de la Légion d'Honneur in 1929. In Paris he made the acquaintance of a French lady—Miss Yvonne Boriet—daughter of a French architect and herself a distinguished artist; their marriage influenced his career, as he continued to share his time between Cork and Paris.

Barry's researches were extensive. His publications are mainly connected with cardiac perfusion and related topics, and he was a pioneer in cardiography. Most of his communications are in the *Journal of Physiology*, *Lancet*, *American Journal of Physiology*, *Archives Internationales de Pharmacodynamie*, *Comptes rendus de la Société de Biologie* and the *Irish Journal of Medical Science*.

At Cork I found Barry a delightful colleague, and his help was always freely given. I was fortunate to co-operate with him in a research on the absorption of polysaccharides obtained from the breakdown of glycogen, published in the *Bulletin de la Société Philomatique de Paris*, 1932. A colleague described Barry years ago in these words: "Superbly endowed with degrees, he was a source of inspiration to his

students. To hear D. T. Barry talk about the central nervous system, to watch him draw cross-sections of the brain and cord at different levels, to see him doing heart-lung perfusions, demonstrating the electrocardiograph and illustrating the action of curare—in 1917—was to be given a pre-view of the influence of applied physiology on the clinical practice of the nineteen-thirties and forties”.

Outside academic life, Barry had other interests. He played chess and bridge—some golf also, but found it too time-wasting for him; so he kept himself fit even in his advancing years by a vigorous, daily half-hour game of squash.

Since retirement, Barry had lived in London, where he died on April 15. He is survived by his widow (who still resides in London) and two sons, both in the medical profession: Claude (called after Claude Barnard, who deeply influenced Barry) in Edinburgh, and René in London. Barry's only daughter died in childhood.

Barry will long be remembered in Cork, where the Physiology Department is a monument to his ability and unselfish work for research. Many of his students now have distinguished positions, and all can look back on him as a very fine teacher and a valued friend.

JOSEPH REILLY

Prof. Gwyn Williams

PROF. GWYN WILLIAMS, professor of chemistry in the University of London (Royal Holloway College), died suddenly in hospital on April 6, at the age of fifty and at the height of his scientific activity.

Born on November 27, 1904, he was the only son of the late J. W. Williams, of Cae Ffynnon, Llandudno Junction, North Wales. He was educated at University College School and later became a student under Prof. K. J. P. Orton at University College, Bangor. After graduation, he was at St. John's College, Cambridge, as a Strathcona research student for two years, returning to Bangor in 1929 as a Fellow of the University of Wales. For a further five years from 1931 he worked in Cambridge on independent research in the Departments of Colloid Science and of Physical Chemistry. Later he spent some months

in the research laboratory of the Eastman Kodak Co. at Rochester, U.S.A.

It was not until 1939, at the age of thirty-four, that he took up academic teaching as assistant lecturer at King's College, London—then evacuated to Bristol. He was soon, however, given a more responsible position, and in 1946 he was appointed to the chair of chemistry at the Royal Holloway College, University of London. Since that time his department has thrived under his guidance and has become an active centre of research. He succeeded in obtaining a new building with greatly increased accommodation which was completed in 1951.

Dr. Williams's scientific work was concerned with the kinetics and mechanism of various chemical reactions, starting with studies of the chlorination of anilides under Orton and Soper and, at Cambridge, including the addition of bromine to olefins and the related problem of the catalysed polymerization of styrene, which he was still studying in recent years.

During the war years at Bristol, he joined with other members of the King's College staff in work on T.N.T. production for the Ministry of Supply, and this led to detailed kinetic studies of nitration in sulphuric acid. Williams took a prominent part in this work, which demonstrated the importance of the nitronium ion as the active agent in such nitrations. In recent years he had extended this study of nitrations very considerably, and had made use of Hammett's acidity function and of various triaryl-carbinol indicators in interpreting the results. The reversible nitration of guanidine and the esterification of alcohols by nitric and sulphuric acids were also examined in detail.

Prof. Williams served his College as a member of its Council and its Finance Committee; he was for a long period secretary of the Board of Studies in Chemistry of the University of London and latterly a member of the Senate. He also took a keen interest in Coleg Harlech, of which he was honorary treasurer. He was a chess player and a member of the Alpine Club, having climbed a great deal in Wales and Switzerland. He was an unassuming man, an assiduous worker and a wise and staunch friend. It is a tragedy that his work should have been cut short so abruptly.

NEWS and VIEWS

Botany at Cardiff:

Prof. R. C. McLean

PROF. R. C. McLEAN is retiring at the end of the present session from the chair of botany in the University College of South Wales and Monmouthshire (Cardiff). A pupil of F. W. Oliver at University College, London, he worked on fossil plants with Sir Albert Seward at the Cambridge Botany School, pioneered in the ecology of tropical rain forest while attached to the botanical gardens at Rio de Janeiro (then directed by J. C. Willis) and later taught for some years at University College, Reading. During the First World War he served as a medical bacteriologist. In 1919 he was appointed to the chair of botany in Cardiff, and the thirty-six years of his tenure of office at Cardiff have seen his Department increase greatly in size and importance. A sub-department of bacteriology has been formed, a ciné-photographic production unit has been set up, a new physiological laboratory has been opened, and a botanic garden has been established on the outskirts

of Cardiff; and but for the Second World War, the Department would have moved into the new building which has been designed under Prof. McLean's direction and will soon arise in Cathays Park. He is noted for his encyclopaedic knowledge and wide sympathies, and for the lucidity of his exposition, and he has undoubtedly had a great influence on the teaching of botany not only in Wales but also far beyond. Prof. McLean's lifelong devotion to outdoor studies marked him out to be the one botanist to be appointed both to the Nature Conservancy and to the National Parks Commission when those two bodies were first set up. During the inter-war period Prof. McLean visited several countries in Europe in connexion with work of the International Association of University Professors and was president of the Association in 1953; he had previously (in 1940) been president of the Association of University Teachers. He has recently toured the world in order to visit national parks in overseas countries and to study their