OBITUARIES

Prof. Niels Bjerrum

WE regret to record the recent death of Niels Bjerrum. He was born in Copenhagen on March 11, 1879, and studied in the University there, taking the degree of Dr. Phil. in 1908 and presenting a dissertation on the hydrolysis of chromium compounds. This work was extended by the discovery of the third isomeric hexahydrate of chromic chloride and, as a result of a study of the absorption spectra of solutions of chromic salts, by the provision of an experimental foundation for the hypothesis of the complete dissociation of strong electrolytes in solution, which Bjerrum in 1909 was the first to make really significant.

Bjerrum later published many valuable researches in various branches of electrochemistry, the theory of acids and bases, the measurement of hydrogen ion concentrations, amphoteric electrolytes, and the behaviour of indicators. He published a monograph on acid-alkali titration and discovered a simple method of eliminating diffusion potentials in measurements of hydrogen ion concentrations. His work in this field had a very significant influence on the development of the modern theory of electrolytes. He developed a simple equation connecting the activity and osmotic coefficients of an electrolyte, and another one relating the activity coefficients to reaction velocity. He worked with Perrin in 1911 on the Brownian movement and later published work on colloid chemistry. In 1923, he published an important paper on the relation of the stages of ionization of polybasic acids to the molecular struc-ture. In 1911, he related the specific heats of steam and carbon dioxide to band spectra. In 1912, he published work with Nernst on the specific heats of steam and carbon dioxide at high temperatures as determined by the explosion method, and in 1914 he laid the foundations of the theory of the infra-red spectra of polyatomic molecules by introducing the so-called valency force-field, which has led to all subsequent developments in this subject. In these publications he applied the newly developed quantum theory of specific heats to gases.

In 1914, Bjerrum became professor of chemistry in the Royal Danish Veterinary and Agricultural College in Copenhagen, an institution which has had a distinguished history. Since then he has published a large amount of important work in various branches of inorganic and physical chemistry and on problems in agricultural chemistry, notably on the factors which determine the pH of soils and their fertility. He wrote an excellent small text-book on inorganic chemistry which has gone through several editions, including two in an English translation.

In his prime, Niels Bjerrum was a tall man of handsome presence with an open and friendly expression, and a calm dignity of manner. He will be greatly missed by his many friends in all parts of the world. J. R. PARTINGTON

Prof. D. C. Grahame

DAVID CALDWELL GRAHAME, professor of chemistry at Amherst College, Amherst, Massachusetts, U.S.A., died suddenly as a result of a coronary thrombosis in London on December 11. He was spending the academic year as a visiting professor in the University of Bristol.

Prof. Grahame was born in St. Paul, Minnesota, on April 21, 1912. He received a bachelor's degree in chemical engineering at the University of Minnesota in 1935 and a Ph.D. degree in physical chemistry at the University of California at Berkeley in 1937. From then until 1939 he was an instructor in chemistry at Berkeley. From 1939 he was on the staff at Amherst College, becoming assistant professor in 1942, associate professor in 1947 and professor in 1953. He received an honorary M.A. from Amherst in 1953. In 1945 he was a member of the staff of the Radiation Laboratory, Massachusetts Institute of Technology. He taught at Harvard in the summer of 1948. He had visited Europe on several occasions since 1952, having been invited to present papers at meetings of the Deutsche Bunsengesellschaft (1955) and the Chemistry Section of the Soviet Academy of Sciences (1956). He held a Guggenheim Fellowship during his stay in Bristol.

His scientific work was largely in the field of electrochemistry, particularly in the study of the electrical double layer located at the interface between a metal and an electrolytic solution. He developed an accurate method of determining the properties of this double layer by measuring its electrical capacity with an alternating current bridge using a growing drop of mercury or gallium as elec-With this elegant technique he obtained trode. precise results for an extensive variety of electrolytes. Starting from the basic thermodynamic principles, he showed how these results could lead to accurate values of the ionic concentrations at the surface of the electrode and hence to a reliable picture of the structure of the interfacial region. He gave a lucid and comprehensive account of the theory of this procedure in Chemical Reviews in 1947, which was further developed in his paper with Barbara Sodernerg in the Journal of Chemical Physics in 1954.

More recently, Prof. Grahame had turned to the adsorption of poly-electrolytes and the use of nonaqueous solutions. In recent months he had devoted much attention to a study of the distribution of potential in the region within a few Angströms of the surface of the metal. The progress he made in elucidating the latter was only possible on the basis of the precise experimental work in which he excelled, together with the depth of his insight into the theoretical aspects of the problem. It is regrettable that this work remains incomplete.

David Grahame's cheerful friendliness won him friends in all parts of the world, all of whom must grieve at his early death. He was married in 1935 to Virginia Dakin, who survives him, with a son and a daughter. R. PARSONS

Prof. William Brunner

ON December 1 William Brunner, emeritus professor of astronomy in the University of Zurich and the Swiss Federal Institute of Technology, died in Zurich. Brunner was born in Wattwil (Switzerland) on July 8, 1878. In 1900—after having been a merchant for some years—he began studying astronomy at the Swiss Federal Institute of Technology in Zurich, where in 1904 he acquired the diploma in mathematics and physics. During the next twentytwo years he was a teacher in a girls' college, until in 1926, in succession to Prof. A. Wolfer, he was appointed director of the Swiss Federal Observatory and at the same time professor of astronomy in the Institute and in the University of Zurich; both directorship and professorship he occupied until, for reasons of health, he retired in 1945.

Besides lecturing, Brunner carried on the traditional work of the Swiss Federal Observatory, namely, the observation of sunspots. In thirty numbers of the Astronomische Mitteilungen and in two volumes of the Publikationen der Eidgen. Sternwarte he published the yearly reports on solar activity, which contain above all the relative sunspot numbers as a continuation of the series reaching back to the year 1749, but also articles on the development of sunspot groups and on the prominence statistics. In 1928 the International Astronomical Union handed over to him the publication of the *Quarterly Bulletin* on Solar Activity. During the years 1938-45 he was a member of the executive committee of the International Astronomical Union.

Brunner wrote several popular books, among them "Die Welt der Sterne" and "Pioniere der Weltallforschung". On his retirement in 1945 he was elected an Associate of the Royal Astronomical Society of London. M. WALDMEIER

NEWS and VIEWS

Forestry Division of the Food and Agriculture Organization : M. Leloup

M. MARCEL LELOUP, director of the Forestry Division of the Food and Agriculture Organization of the United Nations since its creation twelve years ago, is retiring. M. Leloup was a veteran of the First World War and a recipient of the Légion d'Honneur after losing an arm during the battle of Verdun. Having graduated from the famous École Polytechnique, he began his forestry career with the Colonial service of the French Department of Waters and Forests in French Equatorial Africa. In 1932 he returned to Paris to the general direction of the Department of Waters and Forests. In 1936 he was assigned to the Presidence du Conseil and charged with several special missions concerning agricultural and administrative matters. It was in this capacity that he collaborated in the establishment of the Statute of Public Function and was nominated to the highest French administrative body, the Council of State. After the Second World War, M. Leloup became director-general of the Department of Waters and Forests and a Councillor of State. Shortly afterwards he was a member of the French delegation to the Quebec conference of 1945, at which the Food and Agriculture Organization was founded. In May 1946 he became the first director of its Forestry Division. The wide organizational work which he accomplished in this capacity gave him an exceptional knowledge of the problems and possibilities of forests in the world, and he was active in the formation of the Regional Forestry Commission for Europe (1947), for Latin America (1948), for Asia and the Far East (1949) and for the Near East (1953).

E. Glesinger

MR. EGON GLESINGER, formerly deputy director, became director of the Division of Forestry and Forest Products, the new title of the Forestry Division, on January 1. Mr. Glesinger was born in 1907 and was educated in Austria and Czechoslovakia. He graduated in commercial science at Geneva in 1927, obtained a doctorate of law at Prague in 1929 and a doctorate in political science at Geneva in 1932. He also studied at the Institute for International Studies at Geneva, and his thesis on European forests was afterwards published in book form. During 1933-38, Mr. Glesinger was director of the International Timber Committee, an organ of the League of Nations situated first in Vienna and later in Brussels. After the Second World War, he served on the Interim Commission which preceded the formal establishment of the Food and Agriculture Organization, and has been an official of the Organization since its foundation. Besides his post as deputy director of the Forestry Commission, he is at present director of the Timber Division of the United Nations Economic Commission for Europe.

Canadian National Aeronautical Establishment

THE creation of a new Division of the National Research Council of Canada, to be known as the National Aeronautical Establishment, has recently been announced. The formation of the National Aeronautical Establishment was initially authorized in 1951, when it consisted of the aeronautical research facilities of the Division of Mechanical Engineering in the National Research Council, but the heavy and increasing demands on the Establishment have rendered it administratively expedient to separate it from the present Division of Mechanical Engineering, and embody it in a separate Division. The resources of the new Division will consist of the Flight Research Hangar and laboratories at Uplands Airport, the new 5-ft. supersonic wind-tunnel now being constructed at Uplands Airport, and the Aerodynamics and Structures Laboratories in the Montreal Road Laboratories of the National Research Council. The new Establishment will work on defence problems in aeronautical science, and will also be responsible for meeting the aerodynamic and structural research needs of civil aviation and of the aircraft industry.

Mr. F. R. Thurston

MR. FRANK R. THURSTON, head of the Structures Laboratory of the Division of Mechanical Engineering, who has been appointed acting director of the National Aeronautical Establishment, was educated in the United Kingdom, graduating from the University of London. He went to the National Research Council in 1947 from the National Physical Laboratory, Teddington, where he worked on supersonic aerodynamics and on the structural design of aircraft. In the National Research Council he has been responsible for the structural proving of prototype Canadian-built aircraft, and for a wide range of research on structural fatigue, towers and shell structures, and aircraft hydraulic equipment. Representing Canada, Mr. Thurston is chairman of the