

preparative help, they elucidated the distribution and constitution of spermine and spermidine, two bases of unknown function present in mammalian tissues and fluids.

In 1925 Drummond, Rosenheim and Coward had shown that the precursor of the antirachitic substance found in foodstuffs on ultra-violet irradiation was in the fats, and in fact in the sterol fraction. With Webster, who in Leonard Hill's department had already devised a reliable technique for the testing of antirachitic substances on rats, he concentrated on the problem of the activatable sterol and arrived at the important discovery that the so-called pro-vitamin was ergosterol. This led, in the hands of Callow, Bourdillon and their collaborators, to the actual isolation of vitamin D.

In the vitamin A field, too, Rosenheim and Drummond found that the vitamin A content of cod liver oil was approximately proportional to the colour intensity produced by addition of arsenic trichloride, an observation which facilitated further advances.

In 1932 Rosenheim and I were fortunate in resolving the impasse reached in the problem of the structure of the sterols and bile acids by suggesting a revolutionary modification of the structures hitherto proposed. Great advances have flowed from the new formulæ, not only in the sterols and bile acids but also in the heart poisons, sex-hormones and constituents of the adrenals.

Rosenheim's contributions to medical science were many. He was a born investigator, meticulous and thorough in all he attempted. The usès to which he put colour reactions and mixed solvents in purification procedures were fascinating and entrancing. He was full of encouragement for the young worker. His remarkable memory and his encyclopædic knowledge were ever available and often called upon by his many colleagues. For many years he was a valued member of the Accessory Food Factors Committee of the Medical Research Council. He was a Fellow of the Linnean Society and was elected a Fellow of the Royal Society in 1927.

HAROLD KING

Dr. R. W. Boyle

THE sudden death of Robert William Boyle in London on April 18, at the age of seventy-one, has removed one of the last of that small band of pioneers who were responsible for establishing in Canada the importance of research during the early years of the present century. Born in Carbonear, Newfoundland, on October 2, 1883, the son of Dr. Albert D. Boyle and Sophie Madelock Boyle, he received his early education there and in St. John's College, from which he graduated with the award of the Newfoundland Government Jubilee Scholarship. He then entered McGill University, where he studied electrical engineering, graduating in 1905; but, stimulated by the influence of Rutherford, then Macdonald professor at McGill, he turned to a career in physics. He was awarded in 1909 the first Ph.D. granted by McGill and in the same year was chosen an 1851 Exhibition scholar, proceeding to Manchester, where he carried out research under Rutherford on the properties of radium and thorium emanations. Returning to McGill in 1911, he taught physics and mathematics, and in 1912, on the establishment of the University of Alberta, was appointed head of the Department of Physics at the new provincial institution. With his

drive and enthusiasm, he established an excellent department, both for instruction and emphasis on research.

Soon after the outbreak of the First World War, Boyle joined the staff of the Board of Invention and Research, later known as the Antisubmarine Division of the Admiralty. During this period, he developed the method of submarine detection using ultrasonics produced by oscillations of quartz crystals due to their piezoelectric properties. This was a very difficult investigation at a time when electronic amplifiers were not yet available; and when the simple triode tubes eventually were obtained, he established by his drive and vision the success of what later became known as the 'Asdic'. On returning to Alberta in 1919, he continued research on ultrasonics with a small band of enthusiastic research students, making numerous fundamental measurements in this field of physics. His appointment as dean of the Faculty of Applied Science in 1921 extended his influence on research to other fields, creating in western Canada an oasis of scientific interest in original investigation that has continued ever since. The establishment of the National Research Laboratories in Ottawa required a director with energy and vision for the Division of Physics and Electrical Engineering, and Boyle was appointed to fill this new post in 1929, which position he occupied until his retirement in 1948. During this period, his Division made notable contributions to Canadian industry and, especially during the Second World War, was responsible for the major development in radar and various other devices which the Council contributed to the war effort.

Boyle was a lovable character, an interesting and vivid conversationalist, and a kindly loyal friend to all his colleagues. Travel and fishing were his particular hobbies, which occupied his period of retirement. We looked forward to his periodic return to Canada from his travels, for we were assured of a most enjoyable evening hearing of his adventures in picturesque and lively descriptions of places and people he saw and met. He will be greatly missed by his many friends in Canada and abroad.

He received many honours. Elected to the Royal Society of Canada in 1921, he was president of Section III, 1924-25, received the Flavelle Medal in 1940, and was made LL.D. by the University of Alberta in 1933. He was a Fellow of the American Physical Society, the Acoustical Society, and a member of numerous engineering societies. He is survived by two sisters, Mrs. Mary E. Watts and Mrs. Margaret B. Horton, of Billerica, Mass., and three brothers, Dr. Hubert Boyle of New Bedford, Mass., George Boyle of Grand Falls, Newfoundland, and Albert S. Boyle of Edmonton; he never married.

D. A. KEYS

Mr. F. G. Simpson, C.B.E.

FRANK GERALD SIMPSON, who died on May 14, devoted a working life of fifty years to the study of Hadrian's Wall. By training an engineer, he was fired by the possibility of scientific study which the methodically designed Roman works seemed to offer to archaeological investigation. His excavations, undertaken with a precision and clarity which surpassed and surprised all professional contemporaries, reduced the apparent confusion that often attends new discoveries to problems which seemed either simple or insoluble; for they revealed that

the evolution of this most elaborate of Roman frontiers was very much more complicated than had been supposed. But in thirty years, despite the interruption of the First World War, order had been achieved: an apparently ineluctable tangle of evidence was defined, sorted and clarified, and the major problems of the relationship of Wall and Vallum, or of the many structures on the Wall itself, were solved finally and completely.

In achieving the task, Simpson not only evolved his own impeccable technique in excavation, but was among the pioneers who made of stratified pottery an exact instrument for chronology. His classification of this material, finally established in 1929, is basic for Roman studies in northern Britain and set a standard in a far wider field. His talents were early recognized by an honorary fellowship of the Society

of Antiquaries of Scotland, and were presently enlisted by the University of Durham, in which he was an honorary M.A. and director of field studies during 1924-30; then, having gathered about him the nucleus of the archaeological school, he made way for more regular teaching than he himself desired to undertake.

Simpson was for many years director of the Cumberland Excavation Committee and an active member of the North of England Excavation Committee; also president of the Cumberland and Westmorland Archaeological Society and a vice-president of the Society of Antiquaries of Newcastle upon Tyne. The national significance of his work was fitly recognized in 1949, when he was appointed C.B.E., on the occasion of the Centenary Pilgrimage of the Roman Wall. I. A. RICHMOND

NEWS and VIEWS

Botany at Bristol:

Prof. M. Skene

PROF. MACGREGOR SKENE is to retire from the Melville Wills chair of botany in the University of Bristol at the end of this session. Prof. Skene was educated at Robert Gordon's College and the University of Aberdeen, where he studied botany under J. W. H. Trail and zoology under J. Arthur Thomson. After graduating he spent more than two years in France and Germany working under L. Kny, Erwin Baur, L. Jost and C. Flahault. He returned to Aberdeen as assistant with the task of introducing plant physiology into a course until then largely systematic. During the First World War he served for four years with the Royal Field Artillery (T.F.). After a further period in Aberdeen he was appointed lecturer in the University of Bristol in 1926 and reader in 1930. In 1935 he succeeded O. V. Darbishire in the Melville Wills chair. He took part in the planning of a new wing for the biological departments, which was completed just before the outbreak of the Second World War and made possible the accommodation of the students and staff of King's College, London. Since the War he has been a member of the Developments Committee of the University and chairman of the Committee on University Grounds and Gardens. Apart from a number of original papers on physiological topics, his publications include "The Biology of Flowering Plants" and "A Flower Book for the Pocket".

Prof. E. W. Yemm

DR. EDWARD W. YEMM, reader in botany in the University, has been appointed to succeed Prof. Skene. Dr. Yemm was educated at Wyggeston School and Queen's College, Oxford. He graduated in 1931 with first-class honours in botany and was awarded the Christopher Welch biological scholarship. In 1935 he was elected to a research fellowship of Queen's College. He was for some years demonstrator in the Department of Botany of the University of Oxford, and during part of the time was in charge of the physiological research laboratory. In 1938 he was appointed to a lectureship in the University of Bristol. During the War he was at first concerned with radar work in the R.A.O.C. and later was engaged on penicillin production. After his return to Bristol he was appointed reader in 1951. For some

months in 1954 he visited the United States as a Special Rockefeller Fellow. He has recently taken an active part in building up the honours school of biological chemistry. Dr. Yemm's chief research interests are physiological and ecological. His work on the nitrogen metabolism of seedlings is well known, and he has published a long series of papers on this and on related topics. He is also engaged in work on stomatal mechanisms and on the ecology of dunes.

Physics in the Durham Colleges:

Prof. J. E. P. Wagstaff

PROF. J. E. P. WAGSTAFF, who retires under the age limit at the end of the present session, has held the chair of physics in the Durham Colleges since its institution in 1924. After taking a double first in the Mathematical and Natural Sciences Triposes at Cambridge, he served as a research physicist during the First World War in the Research Department of the Royal Arsenal, Woolwich. In 1920 he was appointed to a lectureship in physics in the University of Leeds, which he held until he moved to Durham. Here he faced the task of building up a new department with little assistance—only one lecturer at first—and distinctly limited resources. His success may be indicated by the increase in the number of honours students from two, in his first year, to about forty in recent years. The lecturing staff has correspondingly grown to the present number of five; successive additions to accommodation have also been made, with the result that the teaching and research facilities of the Department are now in all respects admirable. Prof. Wagstaff has always taken a great interest in teaching, and his lucid and interesting lectures, illustrated wherever possible by demonstrations, have been greatly appreciated by his students. They also owe him much for his kindly interest in them as persons, and for his constant solicitude for their welfare, maintained wherever possible after their departure from the University. Although his former students are to be found occupying all types of appointment open to the physicist, it may be said that he has always regarded the profession of teaching as of especial importance, and that he has spared no pains to provide for that profession a supply of well-trained and well-balanced graduates.