

OBITUARIES

Dr. W. R. G. Atkins, C.B.E., F.R.S.

THE death occurred on April 4 of William Ringrose Gelston Atkins at the age of seventy-four. Son of the late Thomas Gelston Atkins, M.D., of Cork, W. R. G. Atkins was born on September 4, 1884. After his schooldays at the Friend's School, Newtown, Waterford, and the Grammar School, Cork, he went to Trinity College, Dublin, where he took two honours degrees in physics and chemistry, and in botany, zoology and geology. He was awarded Senior Moderatorships in Experimental and in Natural Sciences in 1906, and was then successively assistant, during 1906-11, to the late Prof. S. Young, the University professor of chemistry, and during 1911-20, to the late Prof. H. H. Dixon, the University professor of botany, in Trinity College, Dublin. The latter period was broken by the First World War, in which Atkins was an assistant chemist at Woolwich Arsenal in 1915 and a volunteer assistant in the Division for Aeronautical Chemistry of the National Physical Laboratory for the first six months of 1916. As a result of his work at the National Physical Laboratory, he was given a commission as equipment officer in the Royal Flying Corps to organize and direct a laboratory in the Experimental Aircraft Establishment at the Aboukir Depot in Egypt, reaching the rank of major in the Royal Flying Corps. After the War he went for a short time as indigo research botanist at the Imperial Department of Agriculture in India.

In 1921, Atkins was appointed head of the Department of General Physiology at the Plymouth Laboratory of the Marine Biological Association, where he remained until his retirement in 1955, apart from the years of the Second World War, when he served successively in the Home Guard, the Royal Army Medical Corps, and the Meteorological Office.

Atkins's research work thus falls into two distinct periods, that at Trinity College, Dublin, and that at Plymouth. During the first period it was mainly physico-chemical, including such subjects as the properties of urine and the osmotic pressures of blood and eggs of birds, and of plant tissues. While in Egypt he was specially concerned with the deterioration of fabrics and the study of lubricants. In 1916, he published a book entitled "Some Recent Researches in Plant Physiology".

On his arrival at Plymouth Atkins thus had a very wide background on which to draw for his new field of research, which was the physical and chemical conditions of sea water as an environment for marine life. During his long period at Plymouth he undertook researches, the results of which are now basic to all modern research on the productivity of the sea and have passed into essential background knowledge. These related chiefly to the seasonal variations in the chemical conditions, especially the nutrient salts, in sea water; and to the penetration of light into the sea and the effects of fine particles in suspension. In the latter field Atkins collaborated with Dr. H. H. Poole, of the Royal Dublin Society. As a side-line, Atkins continued work started in Egypt on the deterioration of fabrics, in this instance experimenting on methods of preservation of nets and ropes.

His researches on chemical and physical conditions in the sea brought considerable fame to the Plymouth laboratory.

Atkins was an indefatigable research worker, and a noteworthy feature was the way in which he adapted his methods to many environments. For example, his chemical work on sea water was repeated on freshwaters and soils; and his measurements of light were made on land, in woods and in many parts of the world. For many years he ran a continuous light recorder on the roof of the Plymouth Laboratory. He also gave liberally of his advice in many spheres during the Second World War. The range of subjects on which he published is too wide to include in this brief notice.

Atkins held the degrees of M.A. and Sc.D., and was a Fellow of the Royal Institute of Chemistry and of the Institute of Physics; in the First World War he was twice mentioned in dispatches and was awarded the O.B.E. (Mil.) in 1919. He was elected a Fellow of the Royal Society in 1925, and in 1928 he received the Boyle Medal of the Royal Dublin Society. In 1951 he was appointed a Commander of the British Empire in the King's Birthday Honours. He was president of Section K (Botany) of the British Association for this year's meeting in York.

In his earlier days at Trinity College Atkins was an athlete, and besides playing hockey and rowing at Trinity College, he was especially noted for his boxing. He became middle-weight champion of Ireland.

A man of great integrity and kindness, he had very many friends from all parts of the world, to whom he and his wife extended much hospitality at their home at Antony in Cornwall. To Mrs. Atkins, and their married son, all who knew him will extend their sympathy.

F. S. RUSSELL

Prof. Erik Hägglund

ERIK HÄGGLUND died in Stockholm on March 13 at the age of seventy-one. His life was dedicated to the elucidation of the involved reactions in processing wood into cellulose and paper, more particularly the chemistry of the sulphite pulping process, its technology, and the nature of lignin and its secondary derivatives.

Hägglund obtained his scientific education at the University of Stockholm, being fortunate to come under the guidance of an inspiring teacher, Hans von Euler. He received his doctorate in 1914, presenting a thesis on the effect of pH on alcoholic fermentation. It is one of the very first critical investigations of modern type on hydrogen ion concentration. By the way, Hägglund was the first of von Euler's research students to become the incumbent of a university chair in chemistry among the twelve future professors who emerged from the Euler fold. Hägglund graduated three months before the outbreak of the First World War, during which research and chemical technology were given a potent impetus for the sake of national economy and feeding of the people. A few years earlier, the method of fermenting the sugars of waste liquor from the sulphite-pulping

process had been worked out in Sweden, a method still used and of great importance in Scandinavia. Hägglund had already, in 1911, been investigating this problem at the University of Stockholm, collaborating with the inventors of this process. He was thus predestined for an industrial position. The step from the university to industry was then very unusual, in Sweden at least. However, Hägglund found his right field of work and contributed substantially to the ultimate success of the 'sulphite-alcohol' venture. The first and, even by now, the only scientific account of this interesting fermentation is given in his monograph, "Die Sulfitablauge und ihre Verarbeitung auf Alkohol" (1921).

It was quite logical for a man of Hägglund's acumen to inquire further into the problem of converting wood into alcohol—the hydrolysis of the main constituent of wood, the cellulose—to produce fermentable sugars. This difficult problem had already received a great deal of attention in many quarters, but in vain. The only technique of practical use existing is that developed by Hägglund and Bergius, the so-called Rheinau-method (1917) in which hydrochloric acid is used as hydrolysing agent.

The great ability of this young scientist in solving intricate technical problems by application of fundamentals was early recognized in academic circles. In 1920, Hägglund accepted the chair of the chemistry of wood products especially established for him at Åbo Akademi, the Swedish-language university of the new Republic of Finland. A flourishing school of cellulose research came into being, the research output became formidable and many of the fundamentals of the speciality established. Hägglund's work formed a continuation of that of the grand old man of lignin chemistry, Peter Klason, emeritus professor of chemical technology in the Royal Institute of Technology in Stockholm. Actually, Hägglund became the spiritual successor to Klason in 1930, when a chair in wood chemistry and technology was founded at the Royal Institute, through donations from the pulp and paper industries. Fourteen years later, the Swedish Government erected an institute for pulp and paper research, probably the largest and best equipped institute of its kind at that time, constituting a unit of the Royal Institute.

Hägglund and his many pupils—of whom quite a number occupy leading positions in this key-industry of Sweden at the present time—have, during the past twenty-five years, investigated practically every phase of the wood-pulping processes and paper making. Work of a fundamental theoretical nature as well as important contributions to technological aspects of this industry, which is, of course, of great importance for Sweden, have emanated from the Hägglund school. Among his numerous co-workers, Adler, Enkvist, Erdtman, Giertz and Johnson were prominent. It is generally conceded that Hägglund did more than any other single individual to unravel the intricacies of the 'cooking' processes—his research on the formation of lignosulphonic acids being particularly outstanding. His comprehensive text-books, "Holzchemie" (1928, 1939), "Natronzellstoff" (1926) and "The Chemistry of Wood" (1951), are standard works throughout the world.

His unflinching endeavour in furthering the progress and well-being of the industry to which Hägglund devoted his life gave him an international standing. He was a member of many learned societies at home and abroad and received several honorary

degrees, that from the University of Heidelberg giving him great pleasure. Among numerous awards he received was the rare distinction of the Grand Gold Medal of the Royal Swedish Academy of Technical Sciences, and the greatest honour to be given a cellulose chemist, the Ekman and Mitscherlich Gold Medals.

Hägglund was a sterling character, an inspiring colleague and a staunch friend. He will be greatly missed by a large circle of friends and colleagues in many lands.

K. H. GUSTAVSON

Prof. Alfred Kohn

ALFRED KOHN, professor and director of the Department of Histology of the German University in Prague until 1937, died in Prague on January 15, five weeks before his ninety-second birthday. Born in Libin, Bohemia, he received his medical education at the German University in Prague and, while still a student, became assistant to the histologist, Siegmund Mayer, whom he later succeeded in the chair. For various periods in his career he was a senator of the University and dean of its medical faculty.

Kohn is famous for his work on the parathyroids, which he termed *Epithelkörperchen*. His contribution was to point out clearly their independence of the thyroid. He was, at least, a silent partner in Guder-natsch's discovery, made in Kohn's institute, that feeding thyroid to tadpoles inhibits their growth but accelerates metamorphosis. His best-known work deals with the paraganglia and the chromaffin system, which terms he introduced. There has been much dispute about the nature of paraganglionic cells, but recent electron microscopical investigations bear out his views. Kohn considered chromaffin cells to be a special category, comparable with epithelium, nerve cells, muscle cells and so forth. They form a link between nervous and endocrine systems. Kohn also made significant contributions to our knowledge of the differentiation of the peripheral nervous system, stressing the early differentiation of nerve cells ("*primogenitur*", *Hauptzellen*) and the later differentiation of Schwann cells, paraganglia and suprarenal medulla ("*secundogenitur*", *Nebenzellen*).

I worked with him for ten years, and in my view Kohn should be considered a great clarifier who put into focus many structures and problems then only vaguely known or misinterpreted.

During the Nazi occupation of Prague, it seems that some informal protection was first extended to him, but when a *Diener* of the German Anatomy Department saw Prof. Grosser, the well-known embryologist, talk to the Jew, Kohn, in the street, the seventy-four year old Kohn was deported to a concentration camp. He returned to Prague in 1945, but he met new difficulties: on account of his German education and his position in the abolished German University, he was deprived of his super-annuation; however, following protest in the Czech Press, it was restored. Later, the Communist government bestowed on this entirely unpolitical scientist the Order of Labour, which carries a supplemental income, thus making comfortable the last years of his life. Max Watzka, who succeeded him in Prague and is now editor of the *Anatomische Anzeiger* and professor of histology in Mainz, is, of all Kohn's disciples, the one who continues most consistently the work of Alfred Kohn.

RUDOLF ALTSCHUL