

SIR EDMUND LANGLEY HIRST, C.B.E., F.R.S.  
1898-1975

Edmund Hirst was born in Preston, Lancashire, on 21st July 1898, and died in Edinburgh on 29th October 1975. In the intervening 77 years, his outstanding scientific career included periods as a brilliant scholar, at Madras College, St. Andrews, and the University of St. Andrews, as a research worker with a truly international reputation, and later, as a wise and experienced administrator, particularly for the Scottish academic and scientific communities. Full biographical details of his life and achievements are given in the Biographical Memoirs of Fellows of the Royal Society (Volume 22, 1976) and in *Advances in Carbohydrate Chemistry and Biochemistry* (Volume 35, 1978). This present summary of his work serves only to introduce this volume, which contains contributions dedicated by some of his many friends, colleagues, and former pupils. Many others, too numerous to mention, also wish to be associated with this volume.

Edmund Hirst's interest in carbohydrate chemistry appears to have been aroused whilst an undergraduate in St. Andrews, where, in the summer vacations of 1915 and 1916, he assisted Professor (later Principal Sir James) Irvine and Dr. (later Professor Sir Norman) Haworth in the preparation of various fine chemicals, including D-galactose and galactitol from lactose, as part of the war effort of that Department. Military service and other war-time activities interrupted his academic career until 1919, when he began a study of the structure of cellulose, with Haworth as his supervisor. After his Ph.D. graduation in 1921, Hirst continued this work in collaboration with Irvine and, independently, began his fundamental studies of the ring structures of the monosaccharides. After relatively short periods on the staff of the University of Manchester and Armstrong College, Newcastle, he re-joined Haworth in 1927 in Birmingham as a lecturer. In the next few years, the now famous team of Haworth and Hirst, with their collaborators, laid the foundations of modern carbohydrate chemistry. The ring structures of several monosaccharides and the constitutions of many oligosaccharides were established, and the major structural features of several polysaccharides were investigated. This period included the notable dispute with C. S. Hudson on the ring structure of D-mannose, and the elucidation of the structure of ascorbic acid (vitamin C), followed by the chemical synthesis of this vitamin in 1933.

His achievements in Birmingham were recognised by the award of the D.Sc. degree in 1929, promotion to Reader in the Chemistry of Natural Products in 1934, and election to the Fellowship of the Royal Society in the same year. In 1936, he was appointed to the Capper Pass Chair of Organic Chemistry at Bristol, and in 1945, he became Sir Samuel Hall Professor of Chemistry at Manchester. In both of these Universities, his collaboration with J. K. N. Jones was particularly successful, although progress during the period of the 1939-1945 war was interrupted by defence

work for the Ministry of Supply. In 1947, he gladly accepted an invitation to return to Scotland, to become the first Forbes Professor of Organic Chemistry in the University of Edinburgh. He remained in Edinburgh for the rest of his life, and even after his formal retirement in 1968, he continued to maintain his interest in carbohydrate chemistry, and in the work of the Department, and to serve on various academic and scientific committees.

Studies of polysaccharides from higher plants and from algal and animal sources dominated Hirst's work for almost 40 years. Following his own early work on cellulose, his numerous publications reveal successful progress in the Birmingham laboratories with starches, xylans, glycogens, *Acacia* gums, inulin, levans, and mannans; in Bristol and Manchester, pectic acids, *Prunus* gums, arabinans, alginic acid, galactans, galactomannans, and plant mucilages were examined. In the Edinburgh period, special attention was paid to various algal polysaccharides, to many different types of plant gum, to the hemicelluloses, and to polysaccharides from lichens and protozoa. There were few areas in polysaccharide chemistry in which Hirst was not either directly involved himself, or indirectly through other colleagues, whose own progress owed much to his stimulating discussions. He was constantly aware of the impact that advances in other branches of chemistry could have on these investigations; spectroscopic, chromatographic, and physico-chemical methods were all utilised and developed, as appropriate. A review of Hirst's many publications shows how successful these advances were; he also believed firmly that the quality, rather than the quantity, of publications was the first priority.

Hirst's service to carbohydrate chemistry, which included membership of the Advisory Boards of *Carbohydrate Research* and *Advances in Carbohydrate Chemistry*, was only part of his professional life. He gave wise and valued service to numerous Universities, Research Institutes, Scientific Societies, and Government Departments in various roles — as external examiner, visiting lecturer, consultant, or office bearer. In this work, his personal qualities became evident; a sense of service to others before self, his tact and diplomacy, his ability to identify the essentials of a problem and to express himself succinctly, his reputation for thorough preparation before attending a meeting, and, when necessary, his firm chairmanship of meetings. Although Hirst sought only the satisfaction of a job well done, and a problem solved, awards and honours came inevitably to him. He received honorary degrees from six universities, the Davy Medal (1948) and Bakerian Lectureship (1959) of the Royal Society, the Bruce-Preller Lectureship (1951), Gunning Victoria Jubilee Prize (1965), and Presidency (1959–1964) of the Royal Society of Edinburgh, and the Tilden (1940), Hugo Müller (1948), C. S. Hudson Memorial (1954), and Pedler (1955) Lectureships of the Chemical Society, from whom he also received the Longstaff Medal (1958), and which he served as President (1956–1958). He received the C.B.E. in 1957 and was made Knight Bachelor in 1964.

Those who came under Sir Edmund's leadership, and those who benefited from his friendly advice and wise, constructive criticism, will long remember the privilege that was theirs.

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