

JOHN IBALL
BSc, DSc(Wales), FInstP

He was born in Hasland, near Chesterfield, Derbyshire, on 1 February 1907. From 1919 to 1925 he attended Alun County School, Mold, Flintshire. It was there that John was drawn to Physics by the enthusiasm of Mr Gordon Oliver. As a consequence, when he left school he went to read Physics and Mathematics at the College of North Wales, Bangor (University of Wales). He graduated in 1928 with a 1st class degree in Physics. The following year he obtained a Diploma in Education and thereafter an award of a Research Scholarship followed by a University of Wales Studentship.

As a research student he was supervised by Professor Edwin A Owen and this provided an introduction to his lifelong interest in the study of crystal structures by X-ray analysis. He was awarded an MSc in 1930 and a PhD in 1932. His PhD thesis is entitled 'The effect of heat treatment upon the structure of alloys with special reference to the Al-Zn and the Cu-Sn systems'. It describes the remarkably precise determination of atomic spacings from powder photographs.

There followed the award a Fellowship of the University of Wales when, for two years (1932-34), John was a Research Worker at the Davy Faraday Laboratory of the Royal Institution, London. Under the influence of the Director, Sir William Bragg, John focused his X-ray studies on organic compounds, particularly those with carcinogenic activity, and compounds with related structures. In 1934 he was appointed to the staff of the Research Institute of the Royal Cancer Hospital, London. Here Professor JW Cook was involved in the extraction and synthesis of carcinogenic compounds, for example benzo[*a*]pyrene and dibenz[*a,h*]anthracene, carcinogens contained in coal tar. John quickly developed a broad interest in carcinogenicity. His studies included X-radiation in the causation and treatment of cancer; a scale to measure the relative potency of carcinogenic compounds ('the Iball Index'); the oxidation-reduction potentials of quinones derived from carcinogenic hydrocarbons; the electrical changes in wounds and inflamed tissues; the potentialities of polarographic examination of blood of cancer patients. Typically, for this last study, John visited Professor Heyrovsky's laboratory at the Charles University, Prague, the cradle of polarography. John's outstanding research record was recognised by the award of a DSc(Wales) in 1939.

In 1940 John became a member of the Scientific Research staff of the Ministry of Supply (Projectile Development Establishment, Aberporth, Wales) where he was in charge of a section variously involved with problems of high pressures, the development of electrical fuses and other aspects in the technology of rocketry. This meant crossing the Atlantic by sea under war conditions in order to arrange for the production of specialised equipment in the United States.

After the war, John was appointed to be in charge of the Physics Section of the Research Department of Messrs Lever Brothers and Unilever, at Port Sunlight. Here he carried out research on X-ray analysis and on the physical properties of emulsions (1946-8).

On 1 January 1948, John came to Dundee where he was to remain for the rest of his life. He was one of the first Edward A Deeds Fellows of what was then University College, Dundee, University of St Andrews. These Fellowships were donated to the College (from 1954 to be called 'Queen's College') by the generosity of the National Cash Register Company. The Fellowship was held with an Honorary Lectureship in the Physics Department of the College. From the following year till 1952 he was funded by the University of St Andrews as a Lecturer. From 1952 he was appointed a Research Fellow of the British Empire Cancer Campaign (to become the Cancer Research Campaign) while still holding the position of lecturer in the Physics Department of the College. In 1957 he translated to the Chemistry Department, Queen's College, Dundee (in 1967 the College became the University of Dundee). John's work on the structural determination of organic carcinogens was recognised by his election to the Royal Society of Edinburgh in 1950. In 1969 he was appointed Senior Gibb Fellow of the British Empire Cancer Campaign (BECC). That same year he was appointed to an Honorary Chair in Chemistry by the University of Dundee.

The research problems John undertook were not narrowly based. His interests included the structures of various non-carcinogenic hydrocarbons as well as their active relatives. Other studies involved nucleic acid bases, nucleosides and a variety of organometallic compounds.

Although his BECC appointment in Dundee was that of a Research Fellow, his enthusiasm for science showed itself also by his concern for, and by active involvement in, the wider dissemination of science. Undoubtedly his innate interests were stimulated by Gordon Oliver, by Professor Owen, and later by the traditions of Michael Faraday and that remarkable succession of people who were to follow at the Royal Institution. Although John had worked there for only two years, he remained fresh to its influence for the rest of his life. One consequence was that in 1960, when it was suggested that he might organise a local group under the aegis of the British Association, he seized the opportunity. The group, to become the 'Tayside and Fife Branch of the British Association', has flourished ever since. Careful nurturing in its infancy and subsequent good management over a total of 17 years with John as Chairman, set the Branch on its course. In 1968 the Annual Meeting of the British Association was held in Dundee. It was a particularly successful meeting, not least because of the influence of the President for that year, a fellow crystallographer, Professor Dame Kathleen Lonsdale. It was then that the British Association decided to extend its influence more to younger people. This led to BAYS (British Association Young Scientists) to which John gave his unflinching support.

John was blessed with good health for most of his life. He remained unusually active when most of us begin to slow, or worse. His was a life which gave much, not only to the understanding of some of the problems of cancer, but also to the spread of science to university undergraduate and postgraduate students, and to a wider audience. He was a firm man, with tenacity when it was needed, yet all with a gentle, polite manner.

Predeceased by his wife, Margaret, John Iball died in Dundee on 21 January 1993. He is survived by his only daughter, Dorothy, to whom we offer our sympathy.

ROY FOSTER