

**A. J. C. Wilson**

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**80 years**

Professor A. J. C. Wilson's 80th birthday on 28 November 1994 provides a fitting occasion on which to publish an appreciation of his outstanding and uniquely continuous contributions to the International Union of Crystallography over its entire existence and to acknowledge the immense debt of gratitude owed him by all crystallographers. His many friends and colleagues take advantage of this tribute by joining together in greeting him on this major birthday.

The initial suggestion of founding an international union of crystallography modelled on the existing International Unions of Physics and of Chemistry was made by P. P. Ewald at the March 1944 meeting of the Institute of Physics' X-ray Analysis Group in Oxford. This was followed by the famous organizing

meeting, held July 1946 in London, at which an interim representative committee was formed in the expectation of receiving formal recognition by the International Council of Scientific Unions as the International Union of Crystallography. Its expressed objectives were to promote international cooperation in crystallography, encourage international publication of crystallographic research and works, facilitate the standardization of methods and units in crystallography, and form a focus for the relations of crystallography to other sciences. Arthur Wilson, then a senior lecturer at University College, Cardiff, was elected at that meeting as interim editor of *Structure Reports*, the systematic and critical compilation of structure determinations planned as the successor publication to the pre-war *Strukturbericht*.

Thus began a major leadership rôle in the publication activities of the IUCr that continues without interruption to this day.

He was confirmed two years later as Editor of *Structure Reports* and Chairman of the newly appointed Commission on *Structure Reports* by the First General Assembly at Harvard University. It was possible for most of the 310 participants at this first Congress to meet each other although, as a guest graduate student for the summer session at nearby MIT, my principal recollection of Wilson at Harvard was mostly of his being in close conversation with others. I came to know Arthur the following month as a most approachable colleague when we were fellow travellers on the *Queen Elizabeth* returning from New York to Southampton. It was hence a double pleasure, early in 1949, to welcome the publication of Wilson's 127 page monograph *X-ray Optics* to the small collection of contemporary crystallographic texts that then was available.

Born in Nova Scotia, Canada, Arthur Wilson was educated at the King's Collegiate School in Windsor, Nova Scotia. He received his BSc in 1934 and MSc in 1936 from Dalhousie University, Halifax, and his PhD from the Massachusetts Institute of Technology in 1938. He was not then contemplating a career in crystallography and his MIT thesis was entitled *The Heat Capacity of Rochelle Salt between -30 and +30°C*, despite Bertram E. Warren becoming his advisor when his original advisor left for Europe. Awarded an 1851 Exhibition Scholarship in 1937, he left MIT for Cambridge University, England, in 1938 and there was awarded another PhD in 1942. Sir Lawrence Bragg was his nominal advisor for this second thesis, but Henry Lipson was effectively in charge of crystallographic research at the Cavendish Laboratory during this war period. His Cambridge thesis title was *The Thermal Expansion of Aluminium and Lead*. In 1991, Dalhousie University awarded him an honorary Doctor of Laws degree; his address to the conferring Convocation, *Serendipity*, has been printed in *BCA Crystallography News* (1992), **40**, 17-22.

Arthur Wilson's scientific interests have covered many areas, but one has remained rather constant. He first came to appreciate the analytic power of crystallographic statistics when he reviewed a paper submitted to *Nature* in 1942, on the determination of absolute from relative X-ray intensities, soon after he arrived at the Cavendish Laboratory. The complex method used by this paper stimulated his development of a much more direct approach to such a determination, leading to his own heavily cited paper published the same year. Further light on this period is given in his Convocation address. Many of his subsequent derivations of the statistical properties of weighted reciprocal lattices remain in common use.

He has also made important contributions to the diffraction physics of imperfect crystals and the physics of X-ray powder diffraction; results from several of these are contained in Volumes B and C of *International Tables for Crystallography*.

Arthur Wilson continued to guide the quality and growth of the increasingly valuable *Structure Reports* until 1960 when he succeeded Paul Ewald as Editor of *Acta Crystallographica*. He encouraged the submission of reports in the earlier volumes that contained a perceptive critical content, but this was gradually overcome in later volumes by the sheer number of structural papers being published. His academic skills had been recognized in the meantime by his appointment as Professor of Physics at University College, Cardiff, in 1954. His outstanding contributions to crystallography led that same year to his election as a member of the IUCr Executive Committee at the Third General Assembly in Paris. He was appointed Professor of Crystallography in the Department of Physics at the University of Birmingham in 1965, remaining there until his retirement in 1982. He was elected Vice-President of the IUCr toward the end of this period by the Eleventh General Assembly. Following his formal retirement, he established an office in Cambridge where he has continued working on a series of IUCr activities.

*Acta* thrived under his charge, growing from a unified volume of 1164 pages with 213 papers in 1960 to a total of 5020 pages in 1977, with its 1192 papers divided between Volumes A and B, when he asked to be released from the Editorship, having held this office far longer than his predecessor or either successor to date. As Editor, he was also Chairman of the Commission on *Acta Crystallographica* from 1960 to 1967 and, following the launching of the *Journal of Applied Crystallography* in 1968, Chairman of the Commission on Journals. The Commission grew from six Co-editors in 1960 to 18 Co-editors in 1967. He was also the first *ex officio* Chairman of the Commission on Crystallographic Nomenclature, from 1960 to 1977, and since then has continued to be an active *ex officio* member. His strong interests in powder diffraction led to his appointment as a member of the Commission on Crystallographic Data from 1948 to 1960 and from 1969 to 1972; he was also an *ex officio* member from 1972 to 1981.

Arthur attended all General Assemblies from 1948 to 1991. He was a delegate to the Seventh, Eighth and Ninth General Assemblies and was chairman of the UK delegation to the Tenth and Eleventh General Assemblies. As a US delegate to four of these, I recall with admiration the high level of his personal and political advice and skill. Private diplomacy can be arduous but is often more effective than

open discussion on the floor of an Assembly. General Assemblies set the policy to be followed by the IUCr over the ensuing triennium and depend heavily upon the wisdom and integrity of its official delegates.

He became associated with the ICSU/UNESCO Committee on Physics Abstracting in 1948, and very actively represented the interests of the IUCr on its successor organization, the Abstracting Board of the International Council of Scientific Unions (ICSU) from 1951 to 1984 and on its successor, the International Council for Scientific and Technical Information (ICSTI), from 1984 to 1990. He was elected Vice-President of ICSTI from 1980 to 1986.

The IUCr Executive Committee recalled Arthur from his relative freedom in 1982 to take on the Chairmanship of the Commission on *International Tables*. Two series of international crystallographic tables had been published previously. The *Internationale Tabellen zur Bestimmung von Kristallstrukturen*, with C. Hermann as editor, appeared as a two-volume work in 1935 and was an important aid to all in the field. Volume I of *International Tables for X-ray Crystallography*, with Dame Kathleen Lonsdale as General Editor, was published in 1952 and was followed by three further volumes; all four became widely distributed and heavily used throughout the world of crystallography. Unlike the two earlier series, each volume of the new *International Tables for Crystallography* has its own Editor; preparation of Volume A was well under way when Arthur became Chairman and its first edition appeared in 1983, its third in 1992. He edited Volume C, *Mathematical, Physical and Chemical*

*Tables*, which was first published in 1992. Volume B appeared in 1993 and Volumes D and E are at advanced levels of preparation. All five volumes have benefitted widely from Arthur's extensive knowledge and experience.

Arthur formally gave notice of his intention to resign from his many IUCr offices characteristically far in advance of the Sixteenth General Assembly, recognizing the value of encouraging younger crystallographers to assume his duties. Fortunately, he agreed to remain Editor of *International Tables* Volume C as it presently undergoes revision for a second edition, and hence he is still an *ex officio* member of the Commission on Crystallographic Nomenclature. In the latter capacity, he has been an active member of the IUCr Working Group on Statistical Descriptors and it is satisfying to note the continuity between this current activity and his long-established interest in X-ray crystallographic statistics.

Over the many decades I have known him, Arthur Wilson has proven to be a friendly, equable, highly reliable and most capable source of strength who has willingly undertaken any IUCr responsibility requested of him. It is a high privilege and great pleasure to thank him publicly, on behalf of the IUCr, both for his gift of countless hours of thoughtful and indefatigable devotion to each of the primary objectives of our organization, on the one hand, and also for his many scientific accomplishments on the other, and to wish him continued inner satisfaction from his many endeavors.

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