

Obituary

ERIC J. W. WHITTAKER (1921–2015)



Eric James William Whittaker, distinguished crystallographer, mineralogist and geochemist, died on Thursday 2 July 2015 in Kidlington, Oxfordshire, after a short illness. Born on 1 November 1921, he attended Stockport Grammar School and Derby School, where he showed an early aptitude for mathematics and science, and then took his BA degree (1943) in Chemistry at Magdalen College Oxford during the Second World War. The circumstances of the time were to influence his undergraduate research project as much university work was naturally directed towards the war effort. Using X-ray methods he investigated the structure of phases within the charcoal used in gas masks – an unusual but good experience in helping establish his crystallographic interests and expertise.

On leaving Oxford, Eric joined the research team at the brake-lining manufacturer Ferodo UK (based in Derbyshire and a subsidiary of Turner & Newall, the asbestos manufacturing company) and started his long and successful research career into the structure of amphiboles and related

minerals. An early ground-breaking achievement was solving the difficult problem, using X-ray diffraction, of the true nature of chrysotile fibres, a mineral of much importance to the industry. He revealed that their structure is based on silicate curved layers rather than chains. Indeed, chrysotile was to remain one of his favourite topics over many years, with its varieties and the nature of its cylindrical lattice. Many other seminal papers on mineral structure, especially for the asbestiform amphiboles and serpentines, were to follow, with several in association with other crystallographers including Jack Zussman.

Eric was a natural researcher but success within Ferodo led inevitably to promotion (1963) and to an increasing managerial role – as head of the Mechanical and Physical Sciences unit – and away from his favoured vocation. Within two years he had resigned to take up (1965) the lectureship in geochemistry at the Department of Geology, University of Oxford. But his time at Ferodo had given him exceptional experience in structural crystallography, established his

reputation as a world authority on the structure of asbestiform minerals and had earned him a doctorate (1957) from the University of London.

Oxford refreshingly gave him opportunities to work with new colleagues, students and methods, as well as to develop the postgraduate course for the Diploma in Geochemistry. Within two years he became Reader in Mineralogy (on the departure of Jack Zussman to the Professorship of Geology at Manchester University) until his retirement in 1983. This was a very fruitful period. Amphiboles were to remain his principal focus, working with colleagues including Barbara Cressey and John Hutchison, on important topics such as the accommodation of defects and disturbances, the termination of lamellae, and the role of twinning within their structures. He also brought innovative approaches to other subjects such as silicate liquid structures and the application of ionic radii for use in geochemistry. Twice (1977 and 1978) he and his co-author Fred Wicks, received the annual Hawley medal of the Mineralogical Association of Canada for the best paper in their journal, on serpentine structures and textures.

Eric was indeed admired for his systematic and logical approach to all aspects of his work (the words ‘systematically explored’ often occur in his own publications). His clarity of thought could be daunting when in discussion with him about a research topic but it was always tempered by his gentle humour and infectious laugh. Not surprisingly, his text book with its purposeful title *Crystallography: An Introduction for Earth Science (and other Solid State) Students*, published in 1981, has a special elegance

through its logical emphasis on the repeating pattern of atoms. His style and expertise also made him a valuable member over several years of the International Mineralogical Association’s committee on the nomenclature of amphiboles and his renown led to the amphibole Whittakerite being named after him.

Oxford also gave Eric a special role in his College – St Cross – where he was an official fellow from 1967 and Vice-Master for three years (1979–1982). He made a substantial and appreciated contribution during a phase of expansion and change especially with the College’s move to its new site in St Giles.

For many years Eric enjoyed the pastime of painting, in addition to his interest in ancient cultures and hieroglyphics. Later in his career he became interested in more theoretical aspects of crystallography, especially involving higher dimensions. He published his *An Atlas of Hyperstereograms of the Four-Dimensional Crystal Classes* (OUP, 1985) and became fascinated by Penrose patterns as soon as he learned of them and understood their relationship to higher dimensional lattices. He was delighted to be made an Honorary Life Fellow of the Mineralogical Society in 2010 in recognition of his considerable achievements.

He is survived by his two sons Anthony and Roger. His wife, Dorothy, whom he married soon after joining Ferodo, predeceased him. He is remembered with considerable affection by many colleagues and students especially for his invaluable help, encouragement and genuine interest.

PAUL HENDERSON