OBITUARY

Geoffrey Wilkinson (1921–96)

"He has made more isotopes of the chemical elements than any other human being." So spoke Glenn Seaborg in 1976 as he conferred the Centennial Foreign Fellowship of the American Chemical Society upon Geoffrey Wilkinson, who died suddenly in his home in London on 26 September. But this was by no means Wilkinson's only claim to chemical fame.

He prepared a compound of rhodium, later known as Wilkinson's catalyst, which smoothly effects the hydrogenation of numerous compounds into valuable pharmaceutical products. He devised another compound of rhodium that is used in the industrial process of hydroformylation, whereby olefins are converted with 'syngas' (a mixture of CO and H_2) to aldehydes and alcohols. And in 1952, in the Chemistry Library of Harvard University, at about 4 pm on 30 January — his *tempus mirabile* — he achieved what many believe to be his greatest act of imaginative insight: he divined a rational structure for a novel organic compound of iron, $Fe(C_5H_5)_2$, that had been discovered by P. L. Pauson at Duquesne University (T. J. Kealy & P. L. Paulson *Nature* 168, 1039–1040; 1951), where an atom of iron is sandwiched between two planar cyclopentadienyl moieties. (Astonishingly, another Harvard chemist, R. B. Woodward, had arrived independently at the same structure, at about the same time.) It was for his "pioneering work on the chemistry of the organometallic so-called sandwich compounds" that Wilkinson won the Nobel prize for chemistry, which he shared with E. O. Fischer of Munich in 1973.

He was born in Yorkshire in 1921 and educated at Todmorden Secondary School (Sir John Cockroft, Nobel laureate in physics, 1951, was also educated there). He won a royal scholarship to Imperial College, London, and graduated top of his year in 1941. By then, the Second World War was underway, and along with some of the brightest scientific minds of the day, he was recruited for the joint UK/US/Canadian atomic energy programme. They sailed from Greenock for Canada on 11 January 1943 aboard the RMS *Andes*, surviving the hazards of the North Atlantic.

From 1943 to 1946 he worked at Montreal and at Chalk River, developing skills in nuclear chemistry. At the end of hostilities, he joined Glenn Seaborg's research group at Berkeley, where, from 1946 to 1951, during his prodigious work on new isotopes, he accomplished the alchemist's dream: he transmuted another element into gold.

After his move east to MIT and then to Harvard in 1950, Wilkinson left nuclear chemistry and entered mainstream inorganic chemistry. Between 1950 and 1955, he developed a flair and a *modus operandi* for his research that he sustained for the next forty years. At Harvard, he realized that the 'sandwich' structural concept should be extendible to other metals and ligands, and there emerged over the next three years a series of now classic papers on these new aspects of organometallic chemistry.

In January 1956 he returned to Imperial College, London, to the then only established chair of inorganic chemistry in Britain. He was 34, and one of the youngest professors ever appointed by the college. For the next forty years he was to maintain a remarkable output of outstanding chemistry. He gathered around him and inspired a group of coworkers who raced towards establishing the fundamentals of transition-metal organometallics. Many of his scientific progeny now occupy major posts across the continents.

His shrewdness and remarkable intuitive skills drove his chemistry into ever-new pastures. He had the knack of picking good graduate students and postdoctoral workers whom he led in the laboratory by example, and from whom he demanded the highest scientific standards. In this inspirational role, he also possessed a winning obsessional zeal, mingled with the occasional touch of neurotic punctilio.

Over the years, his group produced countless hundreds of completely new organometallic compounds. Providence had provided, in the form of X-ray crystallography (J. M. Thomas *Nature* 364, 478–482; 1993) the ideal technique to determine their detailed atomic structure, so long as they crystallized satisfactorily — and in his ability to choose the 'right' solvent, Wilkinson had the chemical equivalent of green fingers. An organometallic compound with at least one heavy-metal atom draped with organic foliage makes X-ray crystal analysis straightforward because it is easy to determine the phases of each X-ray reflection. The structures that he discovered often had unexpected, sometimes bizarre, atomic juxtapositions that challenged conventional valence rules and often perplexed the purist theoretical chemists (whom he relished taunting).

Wilkinson published more than 550 research papers. But he also profoundly influenced the teaching of his subject with *Advanced Inorganic Chemistry*, an undergraduate text which he authored with one of his former American students, F. A. Cotton, in 1962. Adopted in almost every country, and translated into many languages, this text is about to reach its sixth revised edition. The nine-volume encyclopaedic *Comprehensive Organometallic Chemistry* was produced under his leadership in 1982, to be followed in 1995 by a fourteen-volume supplement. In 1983, along with D. C. Bradley, he founded a new inorganic research journal, *Polyhedron*. These ventures alone underline the remarkable pace of discovery in the subject that he had personally done so much to found and advance.

Geoffrey Wilkinson was knighted for his contribution to chemistry in 1976, but he never allowed himself to fall into the 'establishment net'. Indeed his vociferous defence of funding for curiosity-driven research as against a managed 'foresight' programme regularly brought him into conflict with those in authority. He believed strongly, as does Max Perutz, that "in science, wealth-producing discoveries pop up, like Puck, in unexpected corners". He was convinced that too much management of research stifles innovation. Prime ministers, secretaries of state, members of parliament, university vice-chancellors and heads of funding and research councils were among the recurring recipients of his letters. To the very end he prosecuted research, and the Royal Society, who elected him a Fellow in 1965, this year awarded him its prestigious Davy medal.

He is survived by his Danish wife Lise, to whom he was deeply devoted.

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