

Obituary



Johannes Martin Bijvoet

23 January 1892 – 4 March 1980

The community of crystallographers suffered a severe loss on 4 March 1980 with the death of Johannes Martin Bijvoet, retired professor of General and Inorganic Chemistry at the State University in Utrecht, The Netherlands.

Bijvoet was born 23 January 1892 in Amsterdam, in an old waterfront house. His study of chemistry at the University of Amsterdam was interrupted by obligatory military service during the First World War, 1914–1918. As the Netherlands stayed out of that war, the young man had many hours of enforced idleness in which he acquainted himself with such subjects as classical and statistical thermodynamics. He had the deepest admiration for J. W. Gibbs, whose papers he read thoroughly. This was certainly an unusual pastime for a young man in such circumstances, but was typical of Bijvoet's serious attitude.

Soon after the end of World War I, Bijvoet obtained his master's degree and started work on his doctoral thesis. He and his young colleagues at the Laboratory of Physical Chemistry in Amsterdam were impressed by the first results on the structural determination of crystals, which had recently been published. Their professor, however, objected strongly to Bragg's model of rocksalt which confirmed Barlow's hypothesis. The result of this controversy was the setting-up of an X-ray laboratory under Bijvoet's supervision. This unit in many respects performed a pioneering function in the Netherlands, together with the early work of Prins and Jaeger in Groningen, Keesom in Leiden, and Kolkmeijer in Utrecht.

In 1928 Bijvoet was appointed lecturer in crystallography and thermodynamics at his home University of Amsterdam. He kept this position until he was called in 1939 to the Chair of Chemistry in Utrecht, which he held until his retirement in 1962.

After World War II, Bijvoet played an important role in the newly formed International Union of

Crystallography. At the 1946 pre-Union international meeting of crystallographers at the Royal Institution in London, Bijvoet presented a survey of the work done by Dutch crystallographers during World War II.

His own brilliant research work on phase determination in complicated crystal structures, culminating in the determination of chirality by making use of anomalous scattering, and also his great personal integrity and truly international frame of mind, won him the general respect and affection of the international community of crystallographers and also gave him great authority. In 1951 he was elected President of the International Union of Crystallography, following W. L. Bragg in this position.

When R. C. Evans retired as secretary of the Union, Bijvoet chose the young D. W. Smits, who was virtually unknown internationally, as Evans's successor. His choice proved very effective in setting the young Union on a solid administrative and financial basis. The Union has retained to this day its excellent reputation in this respect, as has been testified repeatedly in ICSU General Conferences.

As the publication program of the Union evolved rapidly, mostly under P. P. Ewald's stimulating influence, Bijvoet undertook various new tasks. He was Co-editor of *Structure Reports* for nine volumes, 8 to 13, 18, 19 and 23. His critical mind and meticulous attention to detail resulted in reports of exceptional value. Under his supervision every reported crystal structure was carefully checked, computational errors corrected (which was especially essential in pre-computer days), diagrams were drawn and redrawn and the whole structure determination subjected to a thoroughly critical evaluation. Unless one compares Bijvoet's reports with the original publications, one cannot appreciate the effort that went into this apparently simple and straightforward job.

Bijvoet also contributed to Ewald's *Fifty years of X-ray diffraction*, published in 1962. He described the work done in the Netherlands and wrote an interesting 'Personal reminiscence'.

After his retirement he prepared, with Gunnar Hägg and W. G. Burgers, the two impressive volumes of *Early papers on diffraction of X-rays by crystals*. So far as we know, the idea of selecting appropriate parts of these early papers and merging them together into a continuous story was Bijvoet's. His highly original approach again required critical evaluation of the most essential sections of those old papers. The final result makes excellent reading and is certainly more intriguing than a simple collection of the full papers would have been. Volume II appeared when Bijvoet was 80.

Two student textbooks were published that same year, written with former coworkers: one was on crystallography, the other on chemical thermodynamics. He then asked us: 'What should I do next?' Well, since then he revised both textbooks for new editions, weighing every word. He followed the work and career of his many former students with great interest until his life's end.

Bijvoet's physical health became very frail soon after his retirement but his mind stayed bright. His continuous capacity for arduous work and his keen personal interest impressed all of us who kept contact with him in his rather secluded home in a rural eastern district of the Netherlands. We were always received there with generous hospitality by his wife Marie. We also owe her our great gratitude and admiration for all that she has been to our unforgettable teacher, J. M. Bijvoet.

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