

## Helmut Beinert (1913–2007)

Helmut Beinert passed away at the age of 94, after a short stay in a Madison hospital. Thanks to his excellent health



he could visit his office almost every day at the Institute for Enzyme Research of the University of Wisconsin. Numerous science organizations, including the NIH and NSF, asked for his advice on many important decisions, and he was a highly regarded reviewer for the international top journals in biochemistry and biophysics. He was an invited speaker for the upcoming Gordon Research Conference on iron–sulfur proteins, which was top on his 2008 priority list. As a true pioneer of bioinorganic chemistry, and being the most prominent researcher on this important class of proteins, he had been asked to talk about the history of Fe–S proteins.

I met Helmut Beinert for the first time in 1968. I had just started my PhD thesis under Peter Hemmerich. The newly founded University of Konstanz had opened its laboratories at the *Sonnenbühl*, and all were highly motivated to do exciting research. Thanks to Beinert, the first electron paramagnetic resonance (EPR) instrument was installed, and was equipped with liquid nitrogen cooling to perform experiments at 77 K. The US biochemist Beinert was top choice on the list of professors for *Little Harvard* at the shores of Lake Constance. Unfortunately, the conditions offered in Madison were just impossible to beat. Later, I was able to realize this myself when I was allowed to look over the shoulder of Beinert and his ingenious co-worker Ray Hansen. For anyone who studied metal enzymes, who wanted to record EPR spectra of biological samples below 10 K, who had to trap intermediates within milliseconds by the rapid-freeze technique, or who had to manipulate milligram quantities of precious proteins under the strict exclusion of dioxygen, Madison

was *the Mecca*. It seemed that part of the Beinert laboratories had been designed for engineers. Typical for Helmut Beinert was that he never directed a large research group. A prime example was the team Kennedy–Beinert and their outstanding work on aconitase.<sup>[1]</sup> He was one of the few famous scientists who consistently carried out research with his own hands. Beinert was always open when it came to physicists and their advanced techniques to analyze complicated biomolecules. The ground-breaking EPR experiments on the copper sites in cytochrome *c* oxidase together with Richard Sands must be mentioned.<sup>[2]</sup> The Mössbauer experiments on Fe–S centers, in collaboration with Eckard Münck, belong in this same league of fundamental studies.<sup>[3]</sup> Both Dick Sands and Eckard Münck are physicists, and together with Helmut Beinert they led successful teams and practiced interdisciplinary research at the highest level.

Helmut Beinert came from Lahr, a small town in Baden, Germany, where he was born on November 17, 1913. In 1955, he became a US citizen. Helmut received his *Abitur* in 1932, at a classical German *Gymnasium* in Heidelberg, which attached importance to Greek and Latin. “I was certainly not predestined or even prepared to enter the world of frontline biochemical research. But in close neighborhood, there was the Kaiser-Wilhelm-Institute (KWI), and one day the children of two KWI directors, Prof. Meyerhof (Physiology), and Prof. Hauser (Physics), suddenly appeared in our school,” Helmut said.<sup>[4]</sup> At the time of his final exams, there happened to be a meeting at the KWI on biological oxidation processes, with all the great names in the field, including Warburg, Keilin, Haldane, Krebs, Kuhn, and Meyerhof. This was most likely a key event for him. Helmut studied Chemistry in Heidelberg and Leipzig, and in 1943 he obtained his Doctorate from the University of Leipzig. However, he carried out his thesis research in the laboratory of Richard Kuhn at the KWI for Medical Research in Heidelberg, and worked there as a Research Associate until 1945.<sup>[4]</sup> At the end of the war, he spent several years with the US Air Force School of Aviation Medicine in Randolph, Texas. He then joined the Institute for Enzyme Research at the

University of Wisconsin in Madison in 1950, where he became a Full Professor in 1962. He stayed in Madison until his retirement in 1985. Beinert then became a Distinguished Scholar in the Department of Biochemistry at the Medical College of Wisconsin in Milwaukee, where he continued his research. The Medical College also hosted the National Biomedical ESR Center, with Jim Hyde as its director; this was clearly another reason to move to Milwaukee.

In 1980, Helmut Beinert became a member of the United States National Academy of Sciences, and he received the Keilin Medal from the British Biochemical Society in 1985, followed by the Warburg Medal from the German Society for Biological Chemistry in 1994. In the same year, he received an honorary Doctorate from the Faculty of Biology at the University of Konstanz. “This is the first one given by our faculty. We want to honor not only an outstanding scientist, but also a colleague who has been always a true friend of our university from its beginning,” said biochemist Horst Sund in his laudation.

The name Helmut Beinert is deep-seated in textbooks of modern biochemistry, be it the fields of redox enzymology, metalloproteins, or bioenergetics. Helmut Beinert left behind two children: his daughter Isabel and his son Hannes. His wife Elisabeth passed away in April 2005.

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