OBITUARY

Boris Kamenar (1929 – 2012)

Professor Emeritus Boris Kamenar, a distinguished Croatian chemist and an internationally recognized scientist and eminent intellectual, suddenly passed away at Premantura on the Adriatic coast on July 12, 2012.

Boris Kamenar was born on February 20, 1929 in Sušak, present day Rijeka, where he attended primary and secondary school. He went on to study chemical technology at the University of Zagreb graduating in 1953 and began his professional career as an engineer at The Cranes Factory and Foundry, "Vulkan", in Rijeka (1953–1956) where he established the Laboratory for Chemical and Mechanical Investigations. In 1956 he joined the group of Professor Drago Grdenić at the Ruđer Bošković Institute in Zagreb working on problems of silicon and boron chemistry under his supervision. In 1960 he wrote the thesis entitled “A New Method for Obtaining Pure Silicon and Boron” and obtained a PhD degree of the University of Zagreb. Soon afterwards, in 1962, he was appointed Assistant Professor and then in 1966 Associate Professor at the Faculty of Science, University of Zagreb. In 1972 Boris Kamenar obtained a permanent position as Full Professor which he kept until his retirement in 1999. In 2000 he was awarded the status of Professor Emeritus of the University of Zagreb. In 1991 he was elected a Member of the Croatian Academy of Science and Arts.

B. Kamenar did his postdoctoral research in 1964/1965 and had an opportunity to work in the research group of Professor Dorothy C. Hodgkin, later Nobel Prize winner, at the Chemical Crystallography Laboratory of Oxford University. In 1971/72 he returned to the same laboratory as a Visiting Fellow of All Souls College of Oxford University. He was appointed Visiting Professor three times at the Universities of New Zealand: in 1980 he spent six months at Auckland University, and again in 1989/90 and then one term in 1995/96 at the Massey University in Palmerston North.

Since 1962, when he obtained a position as assistant professor at the Faculty of Science of the University of Zagreb, Boris Kamenar has pursued his academic career. He served from 1965–1966 as head of the Chemistry Department of the Faculty of Science, from 1982–1984 as head of Laboratory of General and Inorganic Chemistry and as Vice Dean (1968–1970) and Dean (1977–1978) of the Faculty of Science.

Boris Kamenar’s scientific interest was X-ray structural analysis of inorganic, coordination and organometallic compounds, as well as organic compounds of pharmacological importance. The results of his scientific research have been published in 160 scientific articles, 20 professional papers, reported at international conferences and congresses and also many of them found a place in textbooks and monographs. As an internationally renowned scientist, Boris Kamenar chaired or co-chaired a large number of national and international conferences, committees, symposia. He was initiator, principal investigator of national and international research projects.

His scientific investigations have begun with pioneering research in the development of new methods of semiconductor production. He developed a new method for obtaining pure silicon and boron which is described in his PhD Thesis. In 1964, he and Professor Drago Grdenić have patented the process of obtaining very pure silicon. These studies were significant for the development of semiconductor industry in Yugoslavia.
Boris Kamenar's first structural studies, in period of 1960–1965, were related to structures of tin(II), arsenic(III) and antimony(III) compounds to elucidate the stereochemical function of the unshared electron pair. Results of Kamenar's structural investigations confirmed that Sidgwick-Powell rule could be applied also to heavy atoms.

The crystal structure of such a common and simple compound as arsenious chloride dihydrate has been studied in order to determine the coordination of water molecules around the tin atom, a point not only of interest for the structural chemistry of (tetrahedral) compounds, but also having a general significance for the stereochemistry of oxidides or oxoanions with a lone pair of electrons on the central atom.1 The structure of arsenious arsenic chloride is bent, with a bond angle of about 95°, as determined by the electron diffraction of the vapour.2 This angle is a result of the influence of the lone pair of the tin on the bonding pairs, giving a tetrahedral arrangement of pairs of electrons according to Sidgwick and Powell's rule.3 Thus, there are two possibilities for diarsenious arsenic chloride, as pointed out in our previous communication.4–6 Other water molecules may be bound to the tin. In the former case the complex would have to be pentagonal as a result of the tetrahedral arrangement of pairs of electrons and the lone pair of arsenic.5 In the latter case, a distorted pyramidal conformation, as in the SbO or TeOCl₂ structures, would result into non-bonding and lone bonding pairs of electrons. The complex with one co-ordinated water molecule with SbO bonds in the tetrahedral hydration was a more probable and has been chosen to be correct by the present investigation.

Professor Boris Kamenar was a dedicated teacher of Inorganic Chemistry and Crystallography at all levels of study and acted as a mentor to about thirty MSc and PhD students. His broad knowledge inspired his students and co-workers. During all this time he was an active member of the society, participated in many public and professional activities. He served as President of the Croatian Chemical Society (1976–1980), President of the Union of Chemical Societies of Yugoslavia (1976–1980), Secretary of the Yugoslav Center for Crystallography (1966–1990), President of the Croatian Crystallographic Community (1991–2005), Vice-president (1978–1981) and president of the European Crystallographic Committee (1981–1984). From 2000–2004 and from 2011–2012 he served as president of the European Crystallographic Committee (1981–1984). From 2000–2004 and from 2011–2012 he served as president of Board for international collaboration of Croatian Academy of Science and Arts. He was of HAZU representative on the Governing Board of the European Science Foundation. Since 2005 he was a member of World Academy of Arts and Sciences and since 2009 Macedonian Academy of Arts and Sciences.

Boris Kamenar received several awards for his scientific and teaching contributions. In 1970 he received the "Ruder Bošković" Award, in 1980 The Award of Zagreb, in 2000 The State Award for Lifetime Achievement, 2002 Medal of Božo Težak and in 2005 the Medal of Chemistry Department.

All of those who knew Professor Boris Kamenar will remember him as a meritorious scientist and professional. His colleagues and co-workers will miss his strong and optimistic personality.

Professor Marina Cindrić