

Jorma K. Miettinen

* 11.8.1921 † 11.2.2017



A NOTABLE AND INFLUENTIAL figure in Finnish chemistry is no longer with us. Jorma K. Miettinen died on 11th February 2017 at the age of 95 years. Miettinen became acquainted with radioactive substances while working on his doctorate in biochemistry under academician A. I. Virtanen in the early 1950's. Miettinen, who later came to be known to the scientific community as 'the father of radiochemistry in Finland', obtained his training in working with these substances in the USA and at the Sorbonne in France. In 1962 he founded the Department of Radiochemistry in the University of Helsinki. In fact six years previously, as a docent at that university, he had already become the first person in Finland to lecture on the use of radionuclides in his famous 'isotope course' in 1956.

Having started out in biochemistry, Jorma K. Miettinen drifted – or rather steered himself – into other branches of science. The late 1950s was a period when the USA and the Soviet Union were carrying out hundreds of nuclear tests in the atmosphere. At the time only a little was known about their impact on the environment or on human health, and no one in Finland had looked into these matters at all. Thus Miettinen began the career for

which he became famous by collecting samples of snow in 1955 and measuring the radioactivity of the residue after evaporation, leading to the conclusion that it was relatively high. His findings achieved a great deal of publicity in Finland and were discussed at length in the daily newspaper Helsingin Sanomat. This led to the organizing of more systematic research in the early 1960s, and at the latest following the establishment of the Department of Radiochemistry.

Research into the behaviour of radioactive fallout from nuclear tests in the environment and in the human food chain continued under Miettinen's supervision up to the early 1980s and didn't completely come to an end even after that. One particular object of interest for a long time was the enrichment of radioactive caesium in the human food chain in Lapland by way of lichen on the forest floor that were consumed by the reindeer. This work involved the measurement of radioactivity in lichen, reindeer and their meat and also in the bodies of the native inhabitants of Lapland, the Sàmi, the latter recordings being made with a whole-body counting device mounted in a Hanomag van. These measurements, which began in 1961 and continued

on that occasion until 1976, marked the peak in Jorma K. Miettinen's scientific career. His research was quite unique for Finland and was also widely acknowledged internationally. Miettinen obtained long-term funding for the work from the USA, where the Atomic Energy Commission continued to support it until 1979.

Jorma K. Miettinen was also involved in other fields of radiochemistry in the period leading up to his retirement in 1986, including the treatment of radioactive waste from the nuclear power industry. Alongside his work on the fallout from nuclear tests, he also directed the interests of the Department of Radiochemistry towards the behaviour of heavy metals in the environment and in food chains. Another project, carried out together with his laboratory engineer, Timo Autio, was the development of 'plastic wood' by allowing a piece of wood to absorb a plastic monomer solution and polymerizing it using the department's source of gamma radiation. The result was an extremely hard, resilient wood product.

Jorma K. Miettinen was by no means a man who devoted himself to a single cause: it was not only radiochemistry and its research and teaching that he introduced into Finland, as he was also responsible for setting up a research group for verification chemical weapons. For a period of 15 years beginning in 1973 he ran a programme funded by the Finnish Foreign Ministry for developing methods for verification of chemical weapons, a project that subsequently gave rise in 1994 to the Verifin Institute, one of the most trustworthy of the Nobel-prizewinning OPCW chain of research institutes.

Jorma K. Miettinen began studying chemistry at the University of Helsinki in

autumn 1939, and had barely started when university activities were interrupted by a general call to arms on account of the threat of war. Before long war did break out, in the form of the Winter War against the Soviet Union. Miettinen took part in this, and also in the subsequent Continuation War in 1941-1944, eventually emerging as a company commander with the rank of captain. Later, in 1982-1983, he returned to the military for a year or so as director of research at the Finnish Institute of Military Science.

Although staunchly devoted to the cause of the national defence, Jorma K. Miettinen was by no means a "hawk" but was very actively engaged in working for peace. The knowledge he had acquired of the consequences of the use of nuclear weapons had aroused in him a powerful desire to prevent the outbreak of a nuclear war. Thus he was instrumental in founding a Finnish branch of the scientists' Pugwash organization in 1971, immediately upon having himself been invited to take part in one of the organization's conferences. He then served as chairman of the Finnish branch until 2008 and was elected a member of the Pugwash Council in 1974. He was also a member of the delegation that travelled to accept the Nobel Peace Prize awarded to the Pugwash organization in 1995.

Also in 1995 Jorma K. Miettinen was granted the title of 'Academician', making him one of the twelve most prominent Finns at that time in terms of the advancement of science and the promotion of its impact within society at large. He was elected to membership of the Finnish Academy of Science and Letters in 1962.

Academician Jorma K. Miettinen described the power that kept him going:

“Part of that power consists of a boundless curiosity regarding life itself, the phenomena belonging to it, the universe, the structure of matter, the birth and fundamentals of life, knowledge in general, and knowledge of the natural sciences and human peoples and communities in particular.

Other things that keep me going are a yearning for love and beauty, a striving to create something new, a love of my country, a desire to prevent war, especially nuclear war, and a hope that it might be possible to reduce the destruction caused by war should it break out.

The greatest joy in my life I have gained from love, which I have received in

abundance, and my second source of satisfaction has been the results of creative work, although these have been relatively modest: the results of experiments in my youth, the work of my hands in middle age and the results of my written work in old age. My third greatest source of pleasure has been knowledge, which I can delve into every day if only I am prepared to make the effort.

I have attempted to advance the cause of security in my native country and for the peoples of the whole world, employing the knowledge, experience and vigour that have been granted to me. And this I will continue to do for as long as I have the strength to keep going.”

Obituary by Jukka Lehto

Picture: Academy of Finland