

IN MEMORIAM: MART VIKMAA

4 September 1938 – 13 May 2018

In May 2018, Mart Viikmaa, a well-known Estonian biologist and the grand old man of Estonian genetics passed away.

Mart Viikmaa was born as the sixth child in an eight-child family in Karuse commune (now Hanila commune) in Läänemaa County on 4 September 1938. In his autobiography, Mart Viikmaa wrote, “I grew up in Rame village – between and inside Rame Bay, Laelatu wooded meadow, Heinlaht Bay, Nehatu Lake (or bog)” [1]. His schoolyears, 1946–1957, were spent at Nehatu Primary School, Vatla 7-Year School and Lihula Secondary School.

As a schoolboy, he did ornithophenological observations in spring and autumn, and ringed birds. In the fourth year of primary school (1949), he became a member of the Estonian Naturalists’ Society. His interest in nature, including humans, deepened and accompanied him throughout his life. His studies at the Department of Biology of Tartu State University (1957–1962) where he specialised in zoology were a natural continuation to this. His ornithological graduation paper, “Morphological development of nest pedigrees of the thrush (*Turdus*) family” [2], was written under the supervision of Salme Aul.

In his opinion, the greatest adventure in his life was the voyage as a sailor on the Arctic Ocean and the Yenisei River along the route Arkhangelsk-Dikson-Tiksi-Igarka-Murmansk in summer and autumn 1959. He also took trips to the tundra near Tiksi and to the taiga in the surroundings of Igarka [1].

During his postgraduate studies (1962–1965), Mart Viikmaa acquired the methods of histological and cytological research under the supervision of Professor Kalju Pöldvere. From October 1965, he started working as a junior research fellow at the Central Medical Laboratory at the Faculty of Medicine of Tartu State University.

In September 1968, Mart started teaching students of medicine and biology at the Chair of Genetics and Darwinism, which soon became the Chair of Genetics and Cytology. In the spring semester of 1969, he attended follow-up courses of biophysics at Moscow State University. In September 1982,

Mart Viikmaa became a senior research fellow at the Institute of General and Molecular Biology of Tartu State University; for some time, he was also head of the Laboratory of Human Genetics there. He also continued lecture courses at the Chair of Genetics and Cytology, teaching students of biology, later also of psychology. From 1982, Mart's circle of interests included both everyday work and programming on the personal computer (his first computer was Apple II+). He created computer programs for analysis and modelling of biological data and processes, not only for his own research but also to help the colleagues (including the present writer) in their research. From 1992, Mart Viikmaa filled the posts of senior research fellow (from 1999 research fellow) at the Chair of Human Biology and Genetics at the Institute of General and Molecular Pathology and associate professor (from 1999 lecturer) at the Chair of Genetics at the Institute of Molecular and Cell Biology.

Mart Viikmaa delivered lecture courses on general, human, population, evolution and psychogenetics, general, developmental and human biology, and biophysics [1].

He did research and wrote articles on histology, cytology, cytogenetics, cell technology, general, developmental and evolution biology, and Estonians' population genetics.

In addition, he wrote numerous articles for encyclopaedias (Soviet Estonian Encyclopaedia, Estonian Encyclopaedia, TEA), was a co-author of several textbooks for secondary schools and an editor of several textbooks for universities and secondary schools.

"In February 2004, I was dismissed from the University of Tartu because of my excessive age (65)," Mart Viikmaa wrote in his autobiography about his retirement [1].

During retirement, Mart continued active research, edited books and wrote articles.

He made his last presentation on 5 April 2018 when he introduced his book *Pathfinders in Genetics* [3] in the hall of the Estonian Naturalists' Society.

Mart had an excellent feeling for language; his scientific texts, presentations and lectures were clear, comprehensible and interesting. If necessary, he presented complicated details figuratively, still being terminologically precise. He kindly shared the results of his work (including terminological work) with others, for example, he made an online version of his glossary of genetics [4]. In cooperation with co-authors Maie Toom and Margit Teller, he published *Concepts of Biology for Secondary Schools* [5].

As an active member of the research community, Mart participated in several scientific societies (secretary of the Estonian Geneticists and Selectionists' Society, secretary of the Tartu Society of Medical Geneticists, chairman of the Theoretical Biology Section at the Estonian Naturalists' Society, member of the USSR Society of Geneticists and Selectionists, member of the Estonian Human Genetics Society).

From October 1998, he was a *magister scientiarum* (MSc) in genetics.

He received several awards:

1984 – Keeper of Estonian Life Science (prize no. 3) – for his first-rate lectures. The prize of the Keeper of Estonian Life Science is given as recognition to creators and keepers of Estonian biological culture.

2004 – small medal of the University of Tartu.

2008 – Lifework Award of the Estonian Human Genetics Society; he was the first to receive it.

In 2009 Mart Viikmaa was named honorary member of the Estonian Biology Teachers' Society.

My close personal contacts with Mart Viikmaa had their beginning because of population genetic research I started at the Chair of Zoology at Tartu State University in 1966, encouraged by Professors Juhan Aul and Kalju Põldvere. I continued collecting genetic data at the History Institute of the Academy of Sciences in the 1970s–1980s, determining antigens in several blood group systems and the frequency of some physiological characteristics. The study was essential for explaining Estonians' ethnic formation.

In the 1980s, material was collected all over Estonia (40 samples in total), in addition, the genetic material of some neighbouring and other populations. The analysis of the material was extremely time-consuming. Acquisition of a computer, to say nothing of buying programs was out of the question at the History Institute in those years. Therefore, in the 1980s, Mart became a kind helper in my research. Continuous and long-lasting cooperation began on computer analysis of Estonians' population genetic material, and Mart did it with great devotion and interest. As a result of research and with Mart Viikmaa's help, Estonians' population genetic characteristics were found, Estonians' population genetic structure was explained, etc. Population genetic analyses have confirmed and broadened physical anthropologists' conclusions on Estonians' relatively great biological variability, their distinct position compared to western and eastern peoples.

As co-authors, we have published the results of population genetic research in articles and presented them at several conferences of genetics and biological

anthropology in Estonia and at the first USSR conference of medical genetics (in 1983). Based on our joint research, Mart Viikmaa wrote his master's thesis in genetics, *Estonians' population genetic research by means of genetic distances and cluster analysis* (1998) [6].

For several times, Mart Viikmaa emphasised the significance of population genetic research in characterisation of the population of Estonians and their comparison with other populations. Only recently (on 13 November 2017), he stressed in the opinions column of the *Postimees* newspaper [7] that Estonians have been characterised, at least until now, besides social features like language and culture, by their unique genetic structure, like any other human group.

Mart was a classical scientist, a biologist who had great knowledge about nature and natural sciences, including biological anthropology. He was straightforward and precise, always helpful and friendly. Mart often recalled favourably the “old school” lecturers of his university days, especially Prof. Juhan Aul who lectured on anatomy and zoology to him as at the beginning of his studies. Mart particularly appreciated the clarity and precision of Prof. Aul's lectures, their visuality but also his exacting attitude to students and, particularly, his ethical conduct. These features could also be seen in Mart Viikmaa's personality, his lectures and other activities. Mart was well aware of the research of great Estonian anthropologists Juhan Aul, Karin Mark but also of other Estonian anthropologists. He constantly emphasised the significance of biological anthropology, its necessity for the people and culture.

Mart Viikmaa was a regular participant in the events organised by the Anthropology Section of the Estonian Naturalists' Society and the Centre for Physical Anthropology of the University of Tartu, a frequent presenter and maker of apt and insightful comments.

The Centre for Physical Anthropology at the University of Tartu and the Anthropology Section of the Estonian Naturalists' Society will always remember him gratefully.

Mart Viikmaa was interred in New St John's cemetery in Puiestee Street in Tartu.

*On behalf of the Centre for Physical Anthropology and the Anthropology Section
of the Estonian Naturalists' Society,
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