

Towards a better understanding of the Palaeozoic world

The *Estonian Journal of Earth Sciences*, and its predecessor, the *Proceedings of the Estonian Academy of Sciences, Geology*, have an important role in the advancement of Palaeozoic studies in the Baltic area, but also globally. Through the 12 years under the current name the journal has been overseen by the Editor-in-Chief Dimitri Kaljo, an academician and a renowned geoscientist, who celebrated his 90th birthday on 12 October 2018. Dimitri Kaljo's scientific focus has been on Ordovician and Silurian fossils, stratigraphy, palaeogeography, and more recently, geochemistry. In total, he has authored or edited more than 300 scientific papers and books that contribute to a better understanding of the Palaeozoic world. He has been a productive author also for the *Estonian Journal of Earth Sciences* and his papers have attracted readers and gained more citations than those of any of the 160 authors during the last 12 years.

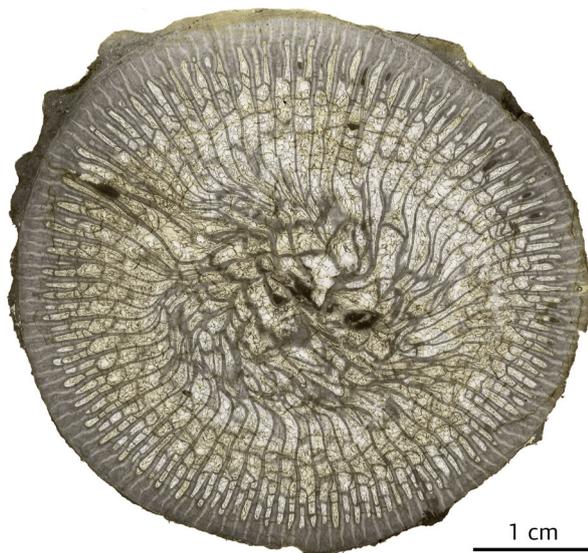
Dimitri Kaljo started his scientific career as a palaeontologist, working on several groups of Palaeozoic macrofossils, but with particular emphasis on rugose corals. Notably, in the 1950s he described some of the oldest and most primitive rugosans in the world (Kaljo 1956), which turned crucial for the reconstruction of the evolution of corals and opened a path for further

discoveries and collaboration in this field. His interest on rugosans has continued ever since, with the latest publications devoted to the diversification of the group during the Great Ordovician Biodiversification Event (Kaljo 2004). Graptolites have been another palaeontological topic of Dimitri Kaljo's research, targeted, first of all, at their biostratigraphic value in Ordovician and Silurian strata. However, in collaboration with colleagues he has been studying various fossil groups such as chitinozoans, acritarchs, brachiopods, conodonts, early vertebrates, tabulate corals, stromatoporoids and other typical members of Palaeozoic faunas.

For two decades (1969–1989) Dimitri Kaljo held the director's position at the Institute of Geology, Estonian Academy of Sciences – the main geological research institution, leading at the same time various integrated studies on the Cambrian–Ordovician and especially Silurian successions of the Baltic region. These works resulted in numerous publications and reports on the evolution of the Baltic Early Palaeozoic sedimentary basin, for instance, the book *Silurian of Estonia* (Kaljo 1970). A number of new research directions were started in Estonia at that time, including ecostratigraphy, event stratigraphy and basinal geology, all based on the tight combination of palaeontology, stratigraphy, lithology, facies analysis and various other aspects.

Dimitri Kaljo's expertise on Early Palaeozoic rocks, fossils and stratigraphy helped him to become an active and respected member of the international scientific community already in the 1970s, during the Soviet time. He joined several international organizations, working groups and committees, like the International Palaeontological Society and the ICS Subcommittee on Silurian Stratigraphy. The collaboration with colleagues from abroad was subsequently fostered through several International Geological Correlation Programme (IGCP) projects, notably 'Ecostratigraphy' (1983–1987) and 'Global Bioevents' (1984–1992), where Dimitri Kaljo was among the leaders and made the Palaeozoic succession of the Baltic region well known globally.

During the last 25 years Dimitri Kaljo's research has focused on stable isotope geochemistry through the Ordovician and Silurian periods, particularly carbon isotope excursions and their application in chemostratigraphy and palaeoenvironmental analysis. Indeed, disturbances in ancient carbon cycling are now known to be tightly coupled with biotic events, such as mass extinctions, as well as changes in ocean circulation patterns and climatic perturbations. Several studies by



Cross section of a large rugose coral *Kaljolasma giganteum* (Kaljo, 1958). The genus name was established to honour Dimitri Kaljo's work on Palaeozoic coral faunas. Specimen No. GIT 80-3 from the collections of the Department of Geology, Tallinn University of Technology. Image by G. Baranov.

Dimitri Kaljo and his research team have been influential in building up this modern view of a dynamic Early Palaeozoic world. The first of these studies documented and discussed the Silurian carbon isotope record of the Ohesaare reference drill core in Estonia (Kaljo et al. 1994). In the following years many individual carbon isotopic excursions were identified in Baltic Ordovician and Silurian strata, and their global occurrence and forcing were proven (e.g., Kaljo et al. 1997, 2004, 2012a; Brenchley et al. 2003; Kaljo & Martma 2006; Ainsaar et al. 2010). This created a basis for compiling a composite carbon isotope curve for the Baltica palaeocontinent, which today serves as a key reference for almost every study on Ordovician–Silurian carbon isotopes worldwide. In recent years Dimitri Kaljo has paid special attention to the chemostratigraphy, faunas and environmental changes across the Hirnantian glaciation and mass extinction interval (Kaljo et al. 2008, 2012b, 2017; Hints et al. 2010), a thoroughly studied, but still not fully understood big event in Earth history.

In 2001 the working group led by Dimitri Kaljo received the National Research Award in geo- and biosciences for the excellent results in using stable isotopes in geology. In 2009 Dimitri Kaljo received the Estonian State Prize for life-long successful research and development work.

The associate editors, publishers and readers of the *Estonian Journal of Earth Sciences* highly appreciate the work by Dimitri Kaljo on developing the journal as well as his scientific contributions. We are looking forward to his next papers and new insights into the Palaeozoic geology.

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