



Identifying changes in Brachiopod community structures and correlating type sections from the Upper Ordovician in the Eastern Baltics

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The position of Baltica during the Ordovician and Silurian period ranged from around 40-50° south, to a position close to the equator. The territory of modern day Latvia and Lithuania was located in the central part of the Baltic palaeobasin with sea levels ranging from deep sea, to littoral zones, due to several sea transgressions and regressions. As a result, the Baltoscandian territory has a vast array of marine facies zones. There are significant lateral changes in facies belt deposits in the modern day territories of Latvia and Lithuania, with evident changes in brachiopod communities. The main deposits of this region are limestones, marlstones, and mudstones, but dolomites, argillite, and clays are also commonly found. Most samples are acquired from drill cores due to the Ordovician and Silurian only outcropping in northern Estonia. To this day, three major issues remain in the eastern Baltic Upper Ordovician formations: i) incomplete type section correlations; ii) the lack of detailed brachiopod community structures, and; iii) a thorough understanding of brachiopod bioevents in Baltica. In a preliminary attempt to solve some of these issues, brachiopods from drill core samples from the Mežciems Formation (Upper Ordovician) in Latvia have been studied in detail in a 2014 thesis. Further research into analogous formations and palaeoenvironments, and significant brachiopod genera occurring in the Mežciems Fm, such as the orthids *Dalmanella*, *Howellites*, *Horderleyella*, and *Platystrophia*; the strophomenids *Sowerbyella*, *Longvillia*, and *Leptaena*; and the billingsellid, *Vellamo*, has led to a greater understanding of the palaeoenvironmental conditions that lead to changes in brachiopod community structures, which will also assist in further enhancing the accuracy of correlating and defining the stratigraphic borders of the Upper Ordovician in the Eastern Baltics.