

Conodonts from the Ordovician of East Greenland

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The Cambro-Ordovician of East Greenland outcrops in a narrow belt between Canning Land (71°36') and C. H. Ostenfeld Nunatak (72°22'N). The uppermost three units, namely the Cape Weber, Narwhale Sound and Heim Bjerger Formations of the 4000 m thick sequence, have been sampled for conodonts.

The Cape Weber Formation (1165 m) consists of an extremely uniform sequence of massive limestones and dolomitic limestones, often with chert bands. Conodonts have been recovered from throughout the formation and those from the top 150 m have a typical Late Canadian (late Early Ordovician) aspect. Long ranging species such as *Glyptoconus quadruplicatus* (Branson & Mehl), *Eucharodus parallelus* (Branson & Mehl) and '*Scolopodus*' *gracilis* Ethington & Clark are found together with *Oepikodus communis* (Ethington & Clark), *Microzarkodina? marathonsensis* (Bradshaw), *Protopanderodus? asymmetricus* Barnes & Poplawski, '*Scolopodus*' *paracornuformis* Ethington & Clark and *Bergstroemognathus extensus* (Graves & Ellison).

The Narwhale Sound Formation is 462 m thick, of which the lower 70–110 m are composed of massive, coarsely crystalline dolomite and calcareous dolomite. The remainder of the formation consists of more thinly-bedded dolomitic limestones and limestones. The conodont fauna from the lower part of the formation is exceedingly sparse with only a few elements of '*S.*' *gracilis* recovered. The fauna becomes more diverse approximately 150 m above the base, the principal species present being '*S.*' *gracilis*, *P.?* *asymmetricus* and *G. quadruplicatus*. The first true Whiterock conodont found is *Multioistodus auritus* (Harris & Harris) which appears 215 m above the base of the formation. The Canadian-Whiterock boundary thus occurs within the lower half of the Narwhale Sound Formation.

The upper half of the Narwhale Sound Formation contains typical Whiterock taxa with various species of *Multioistodus*, *Chosonodina rigbyi*, Ethington & Clark and *Histiodellella holodentata* Ethington & Clark being present. The upper 130 m of the formation in Albert Bjerger contain the characteristic upper Whiterock species *Paraprioniodus costatus* (Mound) together with *Scandodus? sinuosus* (Mound) and New Genus 4 of Ethington & Clark (1982). These species continue into the Heim Bjerger Formation, which is composed of uniform, massive, well-bedded grey limestones. *P. costatus* and *S.?* *sinuosus* continue to be present, together with *Stereoconus* cf. *S. circulus* Moskalenko, until 120 m above the base where they are replaced by *Erraticodon balticus* Dzik, *Belodella nevadensis* (Ethington & Schumacher) and species of *Panderodus*, together with small numbers of '*Acontiodus*' *nevadensis* Ethington & Schumacher and a new genus and species figured by Harris *et al.* (1979). This changeover corresponds approximately to the Whiterock-Chazy boundary. Just below the sub-Devonian unconformity in Albert Heim Bjerger, a single haddingodiform element of *Pygodus* sp. was recovered, indicating a Late Chazy age.

Frykman (1979) noted that the Heim Bjerger Formation on C. H. Ostenfeld Nunatak attains a thickness of 1200 m before it is truncated by the sub-Devonian unconformity – more than twice the thickness recorded in Albert Heim Bjerger. The upper 100 m of this sequence were sampled in detail and yielded *E. balticus*, *B. nevadensis*, *Belodina monitorenensis* Ethington & Schumacher, *Appalachignathus delicatulus* Bergström *et al.* and *Pygodus* cf. *P. anserinus* (Lamont & Lindström). The presence of *P.* cf. *P. anserinus* approximately 90 m below the unconformity on C. H. Ostenfeld Nunatak indicates a Chazy age. A sample from immediately below the unconformity contained *B. nevadensis*. The Heim Bjerger Formation contains the youngest Lower Palaeozoic sediments in the East Greenland segment of the Caledonides. There is thus no conodont evidence for post-Chazy sediments in the Ordovician of East Greenland.

References

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