

Agnathan vertebrates

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Vertebrates were first recorded from the Silurian of Gotland by Rohon (1893) and Lindström (1895), and subsequently by Spjeldnaes (1950), Martinsson (1966), Gross (1968a; 1968b), and Janvier (1971). The most comprehensive vertebrate faunas may be recognised in three stratigraphical subdivisions, viz. the Halla Beds (late Wenlockian), the Hemse Beds (Leintwardinian) and the Burgsvik Sandstone (early Whitcliffian), and at the Riksmuseum collections of vertebrate microfossils are currently being assembled from these and other horizons. Characteristic constituents of much of this material are detached scales of those ostracoderms (Palaeozoic agnathans) referred to collectively as thelodonts.

The thelodonts, whose relations to other ostracoderms are still somewhat obscure, possessed a dermal skeleton consisting exclusively of minute scales, not unlike some type of selachian placoid scales. In time they range from late Llandoveryan to early Eifelian. There is very little evidence on which to discuss their mode of life, but they may have been benthic deposit-feeders. Detached thelodont scales have proved useful for correlation of certain Silurian and Lower Devonian strata (Mark-Kurik 1969; Ørvig 1969:236–237; Turner 1973; etc.).

At Vattenfallet, a single, complete thelodont scale was recovered by L. Jeppsson in a sample at 27.65–28.0 m (Högklint *c*), processed for conodonts. It was associated with some fragments of other scales, not commented on further here. This is the earliest known occurrence of agnathans from Gotland.

The complete scale (Fig. 73) which is 0.5 mm long, has a flat crown, oval in

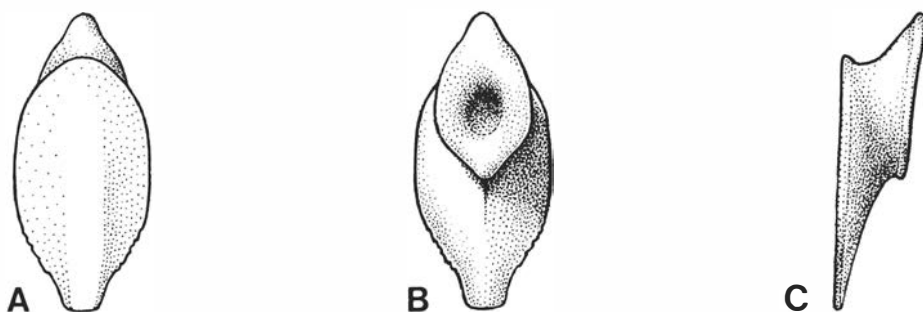


Fig. 73. *Thelodontida* gen. et sp. indet. Vattenfallet 27.65–28.0 m (Högklint *c*). Scale in superficial (A), basal (B) and lateral (C) view, orientated with the anterior end upwards. Approximately $\times 80$. RM C2300.

superficial view, and a small, stalk-like basal plate in its anterior part. Nothing similar has previously been found in either the Silurian of Gotland or in Llandoveryan or Wenlockian strata elsewhere. The only thelodont scales to which, in fact, it seems to bear a certain resemblance are some of those named *Nikolivia oervigi* from the Dittonian of Podolia (Karatajūtė–Talimaa 1968, Pls. 1:1–2, 2:1), and *Amaltheolepis* from the Emsian–early Eifelian of Spitsbergen (Ørvig 1957, Fig. 3F,K,L). Such resemblances, however, are hardly significant.

Since the single thelodont scale from Höglint *c* could not be used for histological investigation, no attempt is made here to give it a generic or specific name. Any new occurrence of vertebrates in the lower part of the Silurian of Gotland is naturally of great interest and search for such material should be encouraged.

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