

Machaeridians

STEFAN BENGTSON

The Machaeridia are a poorly known group of Palaeozoic (Ordovician to Carboniferous) problematical fossils. Their triangular to rhomboidal calcitic plates, with characteristic ornament of raised growth lines, were disposed in pairs of imbricating rows to cover an elongated body or (less likely) organ. For details of the morphology and systematics of the group, see Withers 1926. Long considered to be echinoderms because of the alleged holocrystalline structure of the plates of some species (Withers 1926), the machaeridians have recently been shown to have a fine structure fundamentally different from that of echinoderm stereom (Bengtson 1977, 1978). At present the affinities of the group remain uncertain.

Although a few Gotland specimens have been described and figured (Aurivillius 1892:20; Moberg 1914:19, Pl. 2:23; Hede 1917:23, Pl. 2:9), the machaeridians of Gotland are basically undescribed. For this reason open nomenclature is used here, in the anticipation that current studies of Gotland machaeridians will soon produce a key to these preliminary designations. The material from Vattenfallet comprises about 400 separate plates and a specimen of *Lepidocoleus* cf. *britannicus* with 13 pairs of articulated plates. For the ranges in the section, see Fig. 65.

Faunal list

Machaeridia

Turrilepas cf. *wrightiana* (de Koninck, 1857); *T.* n.sp. *a*; *Lepidocoleus* cf. *britannicus* Withers, 1926; *L.* n.sp. *a*; Machaeridia n. gen. *a*, n.sp. *a*.

Lepidocoleus sp. indet. has also been recorded at 9.95–10.0 m, and unidentified machaeridian plates at 8.5, 9.3 and 18.75 m.

Remarks

Since 95 per cent of all machaeridian specimens found at Vattenfallet have been obtained through elutriation of marl, their distribution in the log to a very large extent reflects the availability of marl samples. Thus their absence in uppermost Högklint *b* and in Högklint *c* is most certainly artificial, since this now inaccessible interval lacks marly intercalations. Their relative scarcity in the Upper Visby Marl may be more real, judging from similar conditions in corresponding sections along the north-western coast of Gotland.

Because of lack of understanding of the zoological nature of machaeridians, their mode of life cannot be confidently reconstructed. It is likely that the plates formed a dorsal protective skeleton of a worm-shaped animal (Bengtson 1970:385–390), comparable to a scale-bearing annelid or a polyplacophoran, and so the machaeridians probably belonged to the vagrant epifauna. Their armour seems to have prevented efficient rapid movement. There is currently no evidence on the mode of feeding, although suspension-feeding can probably be ruled out.

REFERENCES

- AURIVILLIUS, C.W.S., 1892: Über einige ober-silurische Cirripeden aus Gotland. – Bih. K. Sven. Vetenskapsakad. Handl. 18:4:3. 24 pp.
 BENGTSON, S., 1970: The Lower Cambrian fossil *Tommotia*. – *Lethaia* 3:363–392.
 – 1977: Aspects of problematic fossils in the early Palaeozoic. – *Acta Univ. Upsaliensis*. Abstr. Uppsala Diss. Fac. Sci. 415. 71 pp.
 – 1978: The Machaeridia – a square peg in a pentagonal hole. – *Thalassia Jugosl.* 12(1):1–10.
 HEDE, J.E., 1917: Faunan i kalksandstenens mærgliga bottenlager söder om Klintehamn på Gotland. – *Sver. Geol. Unders.* C 281. 32 pp.
 MOBERG, J.C., 1914: Om svenska silurcirripeder. – *Lunds Univ. Årsskr. N. F. Afd. 2*, 11:1. 20 pp.
 WITHERS, T.H., 1926: Catalogue of the Machaerida (*Turrilepas* and its allies) in the Department of Geology. 99 pp. – *Brit. Mus. (Nat. Hist.)*, London.

Hercolepas

STEFAN BENGTSON

A unique specimen of a peculiar problematical fossil, *Hercolepas signata* (Aurivillius), has been described from Högklint *d* at Vattenfallet (Aurivillius 1892:4–12, Figs. 1–8; see also Withers 1915:117–118, Fig. 3). Plates belonging to *Hercolepas* have now also been found in bituminous inter-reef deposits of the Halla Beds (upper Wenlock) of Hörsne 6. Originally described as a lepadomorph cirriped, *Hercolepas* must be considered to be of uncertain affinity. The homology suggested by Aurivillius of *Hercolepas* plates with the capitular plates of lepadomorphs, is not well founded (cf. Withers 1915:117), and the specimen is most certainly much less complete than Aurivillius supposed.

REFERENCES

- AURIVILLIUS, C.W.S., 1892: Über einige ober-silurische Cirripeden aus Gotland. – Bih. K. Sven. Vetenskapsakad. Handl. 18:4:3. 24 pp.
 WITHERS, T.H., 1915: Some Palaeozoic fossils referred to the Cirripedia. – *Geol. Mag. N.S.* Dec. 4. 2:112–123.