

Conulariids

KRISTER BROOD

In the Vattenfallet material conulariids are represented by 80 specimens, as well as numerous fragments obtained mostly from residues of samples processed by Jeppsson for conodonts. The bulk of the specimens are from two beds, the “*Pterygotus*” Marl (Högklint *d*; 61 specimens) and a marly bed at 20.20–20.25 m of Högklint *b* (6 specimens). In the latter bed the conulariids are also associated with eurypterid remains. Most material from the rest of the section is greatly fragmented but since conulariids can generally be identified from characters of the ornamentation, the fragmentary nature of the specimens does not always cause serious taxonomic problems.

Conulariids from Gotland were described monographically by Lindström (1886; refigured by Holm 1893). In this contribution a narrower species concept is used compared with that applied by Lindström. For example, in the Vattenfallet material three different species are distinguished which all fall into Lindström’s concept of *Conularia cancellata*, and two species which Lindström included in *Conularia laevis*. The generic classification is revised after Sinclair (1952) and Moore & Harrington (1956).

Faunal list

Conulariida (see Fig. 55)

Conularia cancellata Sandberger, *C. n. sp. a*, *C. n. sp. b*, *Ctenoconularia monile* (Lindström), *Metaconularia aspera* (Lindström), *Laeviconularia laevis* (Lindström), *L. n.sp. a*.

In addition, unidentifiable small fragments of conulariids were recorded from the following levels: 8.9 m, 12.8 m, 14.4 m, 17.45 m, and 23.7 m.

Discussion

Conulariids have a thin-walled and fragile test that is rarely preserved intact in high energy environments. It is therefore significant that in the Vattenfallet section the rich fauna of conulariids is mainly from the “*Pterygotus*” Marl (Högklint *d*), which was deposited in tranquil, shallow-water conditions and where no bioturbation has taken place in the sediment. There the material is dominated by species with very thin walls, such as *Metaconularia aspera* (41 specimens) and *Laeviconularia n. sp. a* (18 specimens). A somewhat similar

rock at 20.20–20.25 m again contains the same species. Otherwise the conulariids found on Gotland mostly belong to the relatively robust genus *Conularia*. In the Silurian fauna of Gotland conulariids were probably not so rare as they appear to be from collections of macroscopic specimens. In the acid resistant residues from limestone samples they frequently form a significant component (Lennart Jeppsson, personal communication).

The mode of life of conulariids has been the subject of divergent opinions. Many authors concluded that they were sessile animals (Slater 1907; Kozłowski 1968), whereas others have considered a free-swimming mode of life probable (Kiderlen 1937; Moore & Harrington 1956). Since the conulariid skeleton is hydrodynamically unsuitable for a free-swimming mode of life, and since several have been found with their proximal end attached to foreign objects (Slater 1907, among others), it appears probable that they were sessile.

It has been assumed that the conulariids were carnivorous and fed by means of tentacles projecting from the aperture (Kiderlen 1937; Moore & Harrington 1956; Werner 1966). All these reconstructions were based on the assumption that the conulariids were related to cnidarians. However, this relationship is far from certain and in the conulariids the presence of tentacles around the apertural rim in a coelenterate fashion is difficult to visualise. It is far more likely that the conulariids were filter feeders, with water entering through the aperture into a kind of mantle cavity via a filtering apparatus possibly similar in function to a lophophore.

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