Tabulate and heliolitid corals

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The study of Palaeozoic corals can be said to have originated on material from Gotland (Bromell 1728; Linnaeus 1745; Linné 1768), and descriptions of tabulate and heliolitid corals from the island have subsequently been included in, or formed the subject of, many papers (Milne-Edwards & Haime 1851; Lindström 1865, 1873, 1896; Jones 1936; Thomas & Smith 1954; Klaamann 1970; Stasińska 1976, etc.). Lindström's (1899) monograph on the heliolitid corals, with excellent illustrations by G. Liljevall, was based mainly on Gotland material and is still a basic work on the subject. A study of Gotland favositids by Tripp (1933) is difficult to use because of the wide concept of species. An attempt at a monographic study of Gotland tabulates was made by Stasińska (1967) but it comprises only a part of the fauna and much of the material lacked stratigraphical control. Many of the tabulate coral species described from Saaremaa in Estonia (Sokolov 1952; Klaamann 1961, 1966, etc.) have also been identified recently from Gotland.

The material from Vattenfallet comprises 131 tabulate and 56 heliolitid colonies. For distribution see Fig. 24.

Annotated faunal list

Tabulata

Theciidae: *Thecia podolica* Sokolov

Favositidae: *Palaeofavosites forbesiformis porosus* Sokolov, *P. suurikuensis* Klaamann, *P. parilis* Klaamann, *Mesofavosites imbellis* Klaamann, *M.* n.sp. *a*, *Favosites gothlandicus* Lamarck, *F. desolatus* Klaamann, *F. subforbesi* Sokolov, *F. jaaniensis* Sokolov, *F. exilis* Sokolov, *F.* n.sp. *a*, *Barrandeolithus lichenarioides* (Sokolov), *Angopora hisingeri* (Jones), *A. parva* Klaamann.

Syringolitidae: *Syringolites kunthianus* (Lindström).

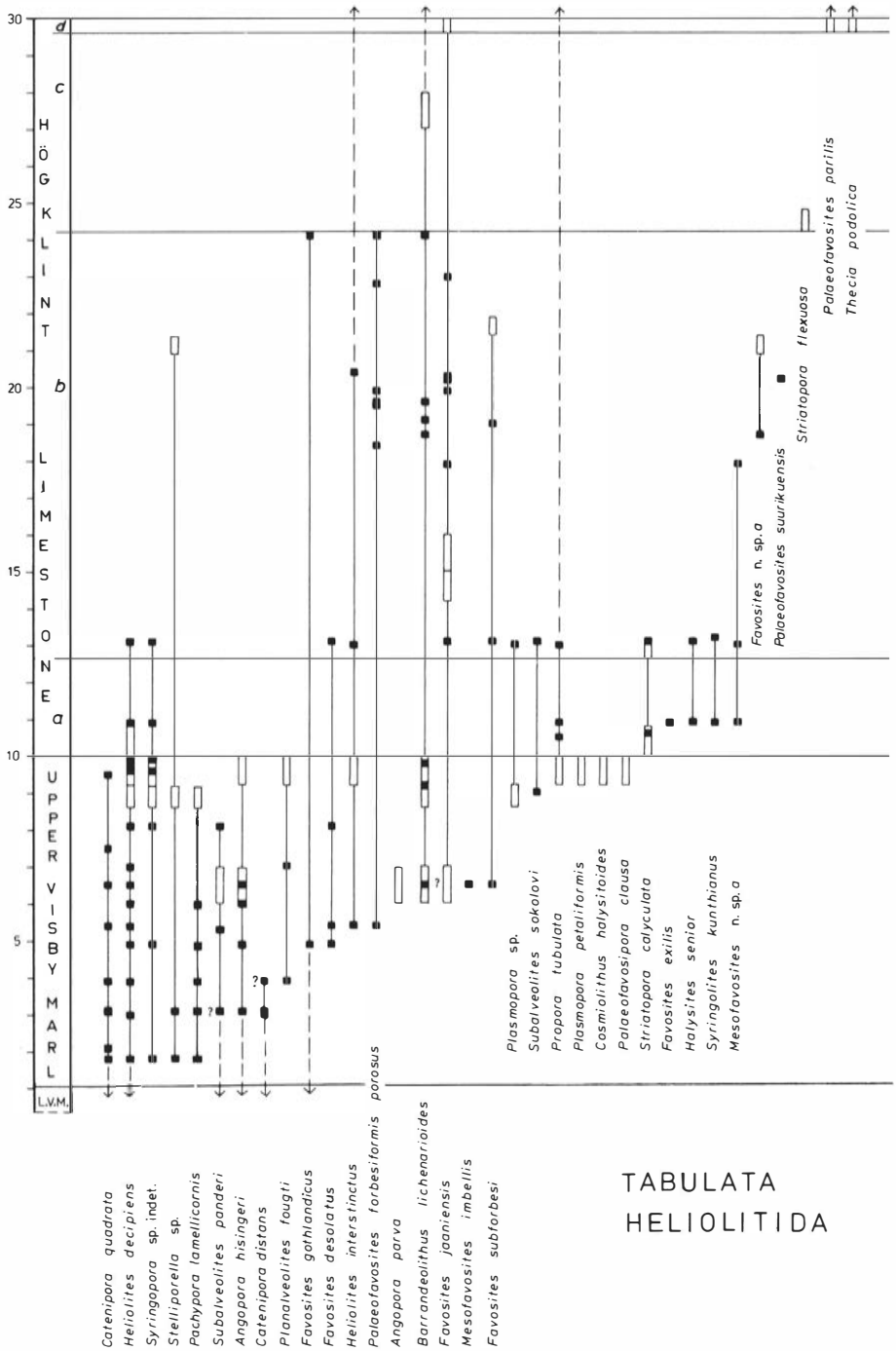
Pachyporidae: *Pachypora cervicornis* Lindström, *Striatopora calyculata* Lindström, *S. flexuosa* Hall.

Alveolitidae: *Subalveolites panderi* Sokolov, *S. sokolovi* Klaamann, *Planalveolites fougti* (Milne-Edwards and Haime).

Syringoporidae: *Syringopora* sp. indet. The material of *Syringopora* from the section consists only of small fragments of colonies.

Palaeofavosiporidae: *Palaeofavosipora clausa* (Lindström).

Halysitidae: *Halysites senior* Klaamann, *Catenipora quadrata* Fischer-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HÖGKLINT LIMESTONE
UPPER VISBY MARL
L.V.M.
Catenipora quadrata
Heliolites decipiens
Syringopora sp. indet.
Stelliporella sp.
Pachypora lamellicornis
Subalveolites panderi
Angopora hisingeri
Catenipora distans
Planalveolites fougti
Favosites gothlandicus
Favosites desolatus
Heliolites interstinctus
Palaeofavosites forbesiformis porosus
Angopora parva
Barrandeolithus lichenarioides
Favosites jaaniensis
Mesofavosites imbellis
Favosites subforbesi
Plasmopora sp.
Subalveolites sokolovi
Propora tubulata
Plasmopora petaliformis
Cosmiolithus halysitoides
Palaeofavosipora clausa
Striatopora calyculata
Favosites exilis
Halysites senior
Syringolites kunthianus
Mesofavosites n. sp. a
Favosites n. sp. a
Palaeofavosites suurikuensis
Striatopora flexuosa
Palaeofavosites parilis
Thecia podolica
TABULATA
HELIOLITIDA

Fig. 24.

Benzon, *C. distans* Eichwald. In addition to these species *Catenipora gothlandica* (Yabe) and *C.* n.sp. were found on the top of the Upper Visby reef-like mound.

Heliolitida

Coccoseridídae: *Cosmiolithus halysitoides* Lindström.

Heliolitidae: *Heliolites interstinctus* (Linnaeus), *H. decipiens* (McCoy), *Stelliporella* sp.

Plasmoporidae: *Plasmopora petaliformis* (Lonsdale), *P.* sp.

Proporidae: *Propora tubulata* (Lonsdale).

Stratigraphical remarks

A comparison between the Vattenfallet section and the sequence in the northern cliffs of Saaremaa, based on assemblages of tabulate and heliolitid corals, has been discussed by Klaamann (1977). In this contribution therefore only the main points are presented.

Upper Visby Marl

At Vattenfallet this unit has the highest taxonomic diversity of tabulate and heliolitid corals; 24 species are recorded out of a total of 34 species for the whole section. In the uppermost beds of the Upper Visby Marl (8.5 to 10 m), heliolitids abound, particularly *Heliolites decipiens*. A closely comparable heliolitid assemblage occurs on Saaremaa in an interval of about 2 m below the base of the Ninase Beds of the Jaani Stage.

Högklint a

Only eight tabulate and heliolitid species have been found in these beds. *Syringolites kunthianus* has been recorded at other localities in the Upper Visby Marl, whereas *Halysites senior* and *Striatopora calyculata* are restricted to the Högklint Beds on Gotland. The latter species appears on Saaremaa in the Ninase Beds of the Jaani Stage where its appearance coincides with that of *Eocoelia angelini* (Rubel 1976). In the Vattenfallet section *E. angelini* appears at the top of the Upper Visby Marl (Bassett, this volume), only slightly before *Striatopora calyculata*.

Högklint b

The general composition of the tabulate and heliolitid fauna of Högklint *b* is fairly similar to that of the Upper Visby Marl but the taxonomic diversity is lower (19 species). Most of the species that continued from the Upper Llandovery into the Upper Visby Marl do not range into Högklint *b*. The

fine-grained limestone in the interval 13.5 to 17 m is very poor in tabulate corals. The commonest species is *Favosites jaaniensis* which is also common in the upper part of Högklint *b*. In the sections on northern Saaremaa this species occurs together with *Palaeofavosites suurikuensis* in the upper part of the Paramaja Beds, that is, in the uppermost beds of the Jaani Stage.

Högklint c

The tabulate fauna here is very poor (2 species) in the section, indicating that environmental conditions were not favourable for colonial corals.

Högklint d

In the "*Pterygotus*" Beds too the rarity of colonial corals indicates unfavourable environmental conditions. Only three species have been found, of which *Favosites jaaniensis* is certainly autochthonous, and probably also *Palaeofavosites parilis*, whereas the recovered colony of *Thecia podolica* probably represents a pebble derived from the older rocks exposed at the same level. *Palaeofavosites parilis* has previously been found in the reefs of the Maasi Beds of the Jaagarahu Stage on Saaremaa, and the Slite beds (Stora Myre 1) of Gotland.

In conclusion, the tabulate and heliolitid assemblages in the Upper Visby Marl, Högklint *a*, and Högklint *b* of the Vattenfallet section closely resemble those from the sequence on northern Saaremaa, with respect to both the composition of the species as well as the succession. In the upper part of the Högklint sequence at Vattenfallet the taxonomic diversity of tabulate corals is low and at present a close comparison is therefore difficult.

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