

Trilobites

DAVID L. BRUTON, VALDAR JAANUSSON, ROBERT M. OWENS,
DEREK J. SIVETER, and RONALD TRIPP

The last comprehensive review of the trilobites from Gotland was that by Lindström (1885). Since then a few additional species have been described but only some small groups have been thoroughly revised (Odontopleuridae, Bruton 1967; *Encrinurus punctatus* group, Tripp 1962). Proetids and calymenids are currently being described monographically by R.M. Owens and D.J. Siveter, respectively, but most of the remainder of the fauna is badly in need of revision.

The total number of specimens of trilobites in the material from Vattenfallet is 846, distributed among the following families: Odontopleuridae (14 specimens), Illaenidae (39), Cheiruridae (8), Proetidae (265), Aulacopleuridae (1), Phacopidae (225), Dalmanitidae (1), Calymenidae (120), Encrinuridae (150), and Lichidae (23). The total number of individuals may have been somewhat smaller than the number of specimens recorded, since in any one bed several specimens might have belonged to a single disarticulated specimen, but it is impossible to determine this. Moreover, occasionally, small specimens may have been moult stages of individuals represented in the same bed by large specimens.

In this paper Bruton is responsible for odontopleurids, Jaanusson for illaenids and cheirurids, Owens for proetids, aulacopleurids, phacopids, and dalmanitids, Siveter for calymenids, and Tripp for encrinurids and lichids.

For ranges in the section see Fig. 31.

Annotated faunal list

Odontopleuridae

Dudleyaspis? sp. indet., *Leonaspis* sp. indet. (13.1 m), *Leonaspis angelini* (Prantl and Přibyl), *Acidaspis pectinata* Angelin, *Anacaenaspis* sp. (cf. *A.* aff. *gotlandensis*, Bruton 1967, Pl. 35:9 only).

Illaenidae

Bumastus holmi Lindström, *Bumastus* n. sp. *a*, *Bumastus* sp. *b* (8–10 m). *Bumastus* is not uncommon in the Högklint beds but most specimens are either fragments, internal moulds, or juvenile pygidia (see *Bumastus* sp. indet. in the log, Fig. 31).

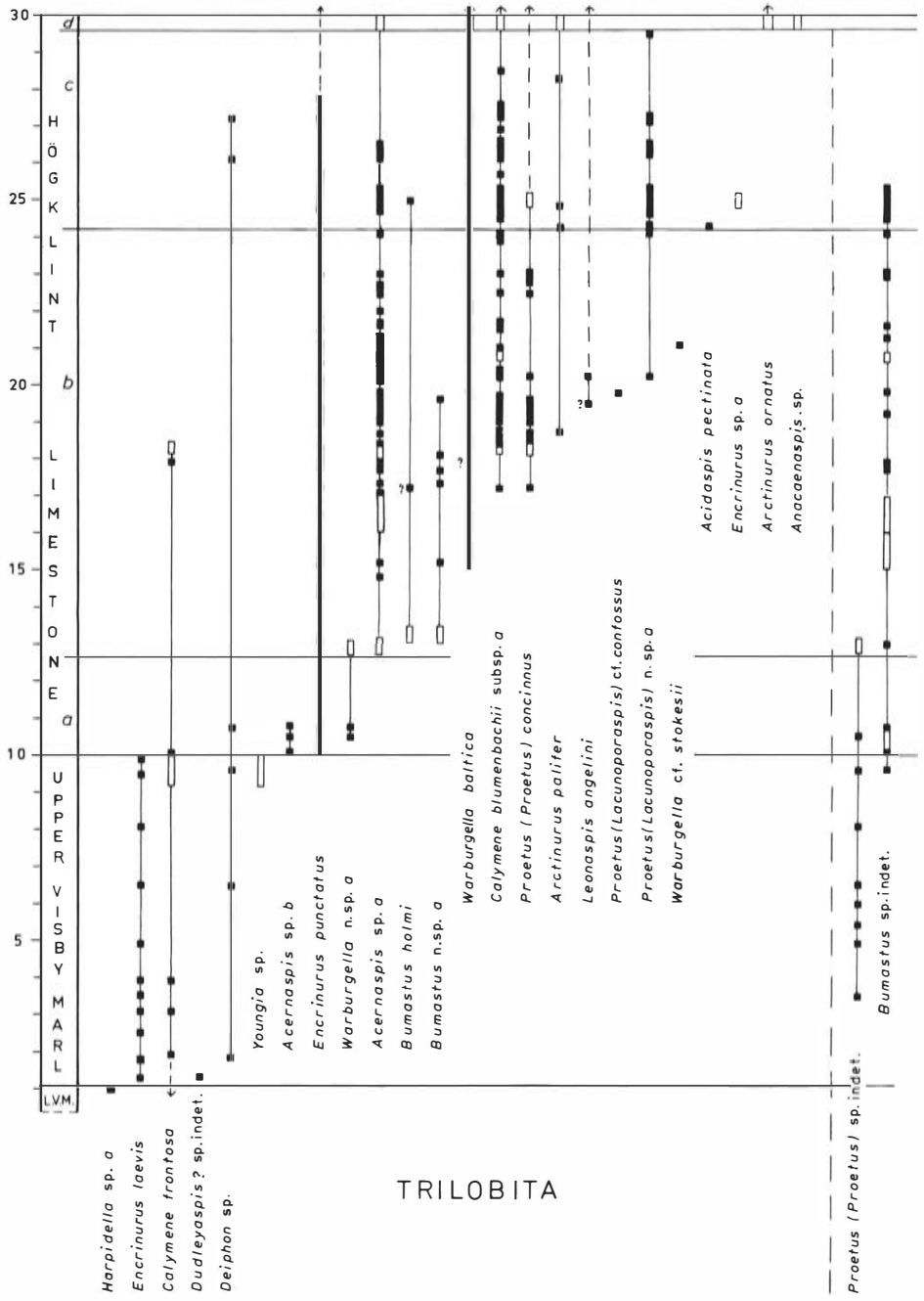


Fig. 31.

Cheiruridae

Deiphon sp. (only very small cranidia), *Youngia* sp.

Proetidae

Proetus (*Proetus*) *concinus* Dalman, *P.* (*Lacunoporaspis*) cf. *confossus* Owens, *P.* (*L.*) n.sp. (aff. *signatus* Lindström), *Warburgella* (*Warburgella*) n.sp. *a*, *W.* (*W.*) *baltica* Alberti, *W.* (*W.*) cf. *stokesii* (Murchison), *Warburgella* sp. indet. (9.20–10.0 m, 13.55 m, 13.85 m). The specimens of *Proetus* (*Proetus*) from the Upper Visby Marl (given in the log, Fig. 31, as *P.* (*P.*) sp. indet.) may include *P.* (*P.*) *concinus* but the material is too fragmentary to resolve the problem.

Aulacopleuridae

Harpidella sp. *a*. This species, represented by a single cranidium, appears to be specifically distinct from the common Mulde Marl species *H. elegantula* (Lovén).

Phacopidae

Acernaspis sp. *a*, *A.* sp. *b*.

There are two closely related, and apparently new phacopid species represented, both referable to *Acernaspis*. Detailed comparison with other species is not possible here, since with a few exceptions, most are badly in need of redescription.

Dalmanitidae

Acastocephala cf. *macrops* (Salter) (Högklint *c*, exact level unknown).

Calymenidae

Calymene frontosa Lindström, *C. blumenbachii* Brongniart n. subsp. *a*.

Encrinuridae

Encrinurus laevis (Angelin), *E. punctatus* (Wahlenberg), *E.* sp. *a*.

In *E. punctatus*, variation in the arrangement of tubercles on the glabella and anterior border of the cranidium have been recorded on specimens from the Högklint Limestone, Slite Marl and Jaani Marl (Tripp 1962: 467, Table 1). Comparable statistics for lithostratigraphical subdivisions *a*, *b*, and *c* of the Högklint Beds, Vattenfallet, are as shown on Table 3. A rare variant is a cranidium from 18.45 m, in which there is a pair of small 1–1 tubercles in place of 1–0. Hypostomes are similar to the specimen from the Slite Beds figured by Tripp (1962, Pl. 67, figs. 8a, b). In most pygidia the mucro appears to have been large, but is broken off. There is one non-mucronate pygidium, from

19.45–19.50 m, comparable in most respects with the lectotype (Tripp & Whittard 1956, Pl. 3).

One free cheek, from 24.80–25.20 m., here referred to *E. sp. a*, is distinguished from species of the *E. punctatus* species group in the coarse pitting of the field of the cheek.

Lichidae

Arctinurus ornatus (Angelin), *A. palifer* (Lindström), an euarginid hypostome (10.0–10.8 m; not likely to belong to *Trochurus* as listed by Hedström 1910).

Stratigraphical remarks

Details of the vertical range of various trilobite species in the stratigraphical interval under consideration are still poorly known on Gotland, in part because the precision of stratigraphical and geographical data on labels accompanying extensive old collections is insufficient for modern needs. In the Vattenfallet material the replacement of *Encrinurus laevis* by *E. punctatus* at the base of Högklint *a* is particularly noteworthy (Fig. 31). The latter species has repeatedly been recorded also from the Upper Visby Marl but its occurrence there requires confirmation.

It is interesting to note that the taxonomic diversity of trilobite species (see also Fig. 76) is much higher in Högklint *b* (estimated number of species in the material 14) and Högklint *c* (13) than in the Upper Visby Marl (9). Högklint *a* has yielded about as many trilobite species (7) as the Upper Visby Marl.

TABLE 3. Comparison of specimens of *Encrinurus punctatus* from the lithostratigraphical subdivisions *a*, *b*, and *c* of the Högklint Limestone, Vattenfallet.

	Metres above sea-level		
	10.0– 13.0	13.0– 24.0	24.0 29.6
Number of specimens:			
<i>Cranidium</i>			
Crania studied	1	12	5
With tubercle iii-0	1	12	4
With any of the 4 iii-2 *	1	9	4
With 8 tubercles on anterior border	—	7	1
With 9 tubercles on anterior border	—	—	—
With 10 tubercles on anterior border	—	1	—
Uncertain	1	4	4
<i>Pygidium</i>			
Pygidia studied	2	15	14
With first tubercle on first ring	—	3	1
With first tubercle on second ring	2	11	12
With first tubercle on third ring	—	1	1
Specimens showing correlation of position of axial and pleural tubercles	—	6	4

REFERENCES

- BRUTON, D.L., 1967: Silurian odontopleurid trilobites from Sweden, Estonia, and Latvia. – *Palaeontology* 10:214–244.
- HEDSTRÖM, H., 1910: The stratigraphy of the Silurian strata of the Visby district. – *Geol. Fören. Stockholm Förh.* 32:1455–1484.
- LINDSTRÖM, G., 1885: Förteckning på Gotlands Siluriska Crustacéer. – *Öfversigt K. Sven. Vet.-Akad. Förhandl.* 1885. 6:37–100.
- TRIPP, R.P., 1962: The Silurian trilobite *Encrinurus punctatus* (Wahlenberg) and allied species. – *Palaeontology* 5:460–477.
- & WHITTARD, W.F., 1956: Proposed use of the plenary powers (*a*) to designate type species in harmony with accustomed usage for the genera “*Encrinurus*” Emmrich, 1844 and “*Odontochile*” Hawle and Corda, 1847, and (*b*) to validate the specific name “*punctatus*” Wahlenberg, 1821, as published in the combination “*Entomostracites punctatus*” (Class Trilobita). – *Bull. Zool. Nomencl.* 12:259–263.