

# A New Cambrian Trilobite, *Clarella grönwalli*, from Bornholm.

By

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Bornholm has been made famous for its Cambrian fossils by the pens of several eminent Scandinavian palaeontologists, especially Professor KARL A. GRÖNWALL, of the University of Lund, who published in 1902 a very excellent description of the *Paradoxides* beds and faunas of that island<sup>1</sup>).

Among the Paradoxidian fossils which Professor GRÖNWALL described from Bornholm there was one, collected from a bed of the *Conocoryphe aequalis* Zone at Øle Aa, about the identity of which he had some doubts. This was a single trilobite cranidium, which he referred with some misgivings to the genus *Paradoxides*, and to which he gave no specific name, although he figured and discussed it. He recognized that it might perhaps be referable to the genus *Centropleura*, rather than to *Paradoxides*, and he compared it with *Centropleura lovéni* ANGELIN, a species characteristic of the late Paradoxidian Cambrian *Paradoxides forchhammeri* Zone of Sweden and Bornholm. He considered, however, that it differed from that species in several respects.

This cranidium is now preserved in the Mineralogical and Geological Museum of the University of Copenhagen. It seems to the authors that it should be given a specific name; they propose to name it in honour of Professor GRÖNWALL. They consider that it is not a *Paradoxides*, but a member of the subfamily *Centropleurinae*, and of the new genus, *Clarella*, which is defined elsewhere in the present number of this journal. They therefore describe it herewith.

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<sup>1</sup>) Bornholms Paradoxideslag og deres Fauna. Danmarks Geologiske Undersøgelse, II Række, no. 13, 1902.

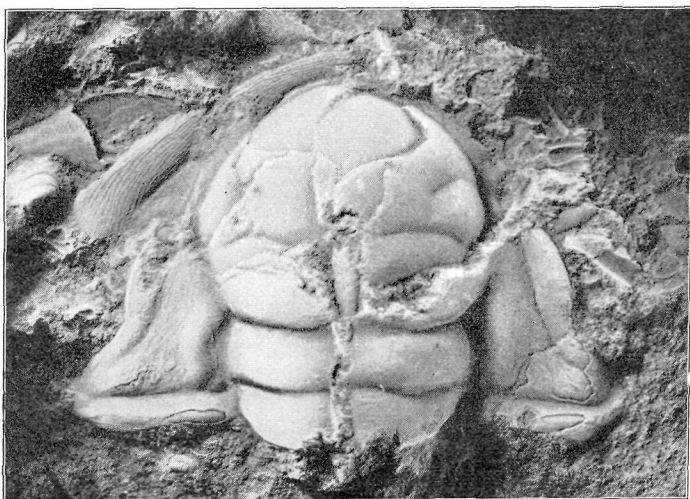
Class Crustacea.  
 Subclass Trilobita.  
 Order Opisthoparia BEECHER.  
 Family Paradoxidae EMMRICH.  
 Subfamily Centropleurinae HOWELL.

*Clarella grönwalli*, n. sp.

Text figure 1.

*Paradoxides?* sp. indet. no. 1. K. A. GRÖNWALL. Bornholms Paradoxides-  
 lag og deres Fauna. Danmarks Geologi-  
 ske Undersøgelse, II. Række, no. 13,  
 1902, p. 120, 121, pl. 3, f. 5.

Only the cranidium is known. It is of the usual Paradoxid type,  
 with a wide glabella that is moderately convex and evenly rounded  
 in front. The neck furrow is well developed, and the glabellar furrow



CHR. POULSEN PHOT.

Fig. 1. *Clarella grönwalli* n. sp. (Cranidium). Holotype ( $\times 1,5$ ).

in front of it extends straight all the way across the glabella. In  
 front of the latter furrow there are two more furrows (the second  
 and third), which curve backward and, as nearly as can be determined  
 from an examination of the single known specimen, do not extend  
 all the way across the glabella. The characteristic Centropleurin  
 anterior furrows are present, extending for a short distance diagonally

backward from the edge of the glabella. The palpebral lobes are sinuous, and extend almost to the rear corners of the cranidium. The brim is rather flat, of medium width, and reaches laterally nearly as far outward as do the rear corners of the cranidium, and almost as far back as the second glabellar furrow. The facial suture makes an acute angle as it curves from the front end of the palpebral lobe outward and backward to cross the brim. The surface of the cranidium is ornamented with fine, anastomosing lines, which are extremely faint on the glabella and the fixed cheeks, but well marked on the brim.

#### Comparison with other species.

Of the four other known species of *Clarella*, *C. grönwalli* appears most to resemble *Clarella imparis* (HICKS)<sup>1</sup>, of Wales. It differs from that species (as nearly as it is possible to determine by comparison with Hicks' figures) in having the anterior half of the glabella more expanded and the brim more extended laterally. It differs from *Clarella venusta* (BILLINGS)<sup>2</sup>, of Newfoundland, the type species of the genus, in that its glabella touches the brim, the two being not in contact in BILLING'S species. It is difficult to determine its differences from *Clarella steenstrupi* (ANGELIN)<sup>3</sup>, of Sweden, and *C. pugnacis* (ILLING)<sup>4</sup>, of England, by comparing it with the only published illustrations of those species; but it would seem to differ from *C. steenstrupi* in having the glabella less constricted toward the rear and in having the rear glabellar furrow better developed all across, and to be unlike *C. pugnacis* in having the portion of the glabella in front of the second glabellar furrow relatively shorter and the portion of the fixed cheeks inside of the palpebral lobes somewhat narrower. The glabella of *C. pugnacis* is also said not to reach the brim, while, as has been said, that of *C. grönwalli* touches it.

Location of type. The holotype and only known example of this species is a cranidium, no. 172 in the palaeontological collection of figured specimens in the Mineralogical and Geological Museum of the University of Copenhagen.

Horizon and locality. *Conocoryphe aequalis* Zone, late

<sup>1</sup>) HICKS, H., On some undescribed fossils from the Menevian Group., Quart. Journ. Geol. Soc. London, vol. 28, 1872, p. 179, pl. 7, figs. 8—11.

<sup>2</sup>) BILLINGS, E., Palaeozoic Fossils, vol. 2, 1874, p. 73, fig. 42.

<sup>3</sup>) ANGELIN, N. P., Palaeontologia Scandinavica, Appendix, 1878, p. 95, pl. 3 (em.), figs. 1 b, 1 c, 3, 5.

<sup>4</sup>) ILLING, V. C., The Paradoxidian fauna of a part of the Stockingford Shales, Quart. Journ. Geol. Soc. London, vol. 71, 1916, p. 430—431, pl. 37, fig. 4.

middle, Paradoxidian Cambrian at Øle Aa, Bornholm Island, Denmark.

The *Conocoryphe aequalis* Zone, in which this species was found, is stratigraphically in the border region between the middle Paradoxidian *Paradoxides tessini*, or *Paradoxides hicksi*, Zone and the late Paradoxidian *Paradoxides davidis* Zone. It has yielded at the Øle Aa locality, in addition to *Clarella grönwalli*, the gastropod *Raphistoma bröggeri* GRÖNWALL, the pteropod, *Hyolithes socialis* LINNARSSON, and the trilobites, *Agnostus punctuosus* ANGELIN, *A. nudus scanicus* TULLBERG, *A. fallax ferox* TULLBERG, *A. parvifrons mammillatus* BRÖGGER, *A. planicauda* ANGELIN, *A. lingula* GRÖNWALL, *A. pusillus* TULLBERG, *A. rotundus* GRÖNWALL, *Eodiscus scanicus eucentrus* (LINNARSSON), *Conocoryphe aequalis* LINNARSSON, *Paradoxides tessini* BRONGNIART, *Dorypyge danica* GRÖNWALL, *Corynexochus bornholmiensis* GRÖNWALL, and *Liostracus linnarssoni* BRÖGGER. Of these species, *Raphistoma bröggeri*, *Hyolithes socialis*, *Agnostus punctuosus*, *A. fallax ferox*, *A. rotundus*, *Eodiscus scanicus eucentrus*, and *Paradoxides tessini* were found by Professor GRÖNWALL also in the overlying *Paradoxides davidis* Zone; and *Hyolithes socialis*, *Agnostus punctuosus*, *A. nudus scanicus*, *A. parvifrons mammillatus*, *A. pusillus*, *Eodiscus scanicus eucentrus*, *Paradoxides tessini*, *Corynexochus bornholmiensis*, and *Liostracus linnarssoni* were collected by him from beds of the *Agnostus parvifrons* Zone and the alum shales; which underlie the *Conocoryphe aequalis* beds at that locality.

It is hoped that future collecting on Bornholm will produce additional examples of this interesting trilobite that will add to our knowledge of it, and especially to our knowledge of those parts of its test which are as yet unknown.