

## THE MIDDLE ORDOVICIAN OF THE OSLO REGION, NORWAY

### 21. A new pelecypod of the genus *Palaeosolen* Hall, 1885

BY

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**Abstract:** A new species of *Palaeosolen* HALL, 1885, *Palaeosolen ordovicicus*, is described from the Middle Ordovician of the Oslo Region, Norway. Species of *Palaeosolen* have hitherto not been recorded with certainty in beds older than the Devonian.

### Introduction and acknowledgements

During an excursion to the Ringerike district in 1960, Dr. Gunnar Henningsmoen (Palaeontological Museum, Oslo) found two specimens of a soleniform pelecypod in Middle Ordovician beds. I wish to thank him for entrusting to me the description of this material, which seems to be the earliest known representatives of the genus *Palaeosolen* HALL, 1885. I further wish to thank my sharp-eyed colleague Mr. Frank Nikolaisen (Palaeontological Museum, Oslo) for subsequently detecting another specimen, from Bygdøy, Oslo, in the old museum collection, where it had been labelled *Hyolithes* sp., and Mr. J. F. Bockelie for still more material from the Asker district, and for his untiring search for 'the complete specimen'. All the specimens are believed to belong to one species, described below as *Palaeosolen ordovicicus*, n. sp.

I am also greatly indebted to Dr. Roger L. Batten of the American Museum of Natural History, and Dr. D. J. McLaren of the Geological Survey of Canada for sending me types for study. Finally, I wish to

thank Miss Bergljot Mauritz and Miss Lisbeth Bryntesen for the photographs. My English has been improved by Robin L. Oliver.

#### ABBREVIATIONS

- AMNH — American Museum of Natural History  
GSC — Geological Survey of Canada  
PMO — Palaeontological Museum, University of Oslo

#### Description

Genus *Palaeosolen* HALL, 1885

TYPE SPECIES: *Orthonota siliquoides* HALL and WHITFIELD, 1869 (by monotypy).

REMARKS: HALL (1885) described this genus as a subgenus of the genus *Solen* LINNÉ, 1758. ULRICH (1894) gave it generic rank and included it in the family Solenidae. This relationship has been accepted by most subsequent authors on account of the external similarity between species of *Palaeosolen* and species of the family Solenidae. The dentition and other internal characters of *Palaeosolen*, however, are not known, and the family relationship, therefore, cannot definitely be ascertained.

All known species of this genus, except two, have been described from Devonian beds. The two exceptions have been described from the Silurian beds of Arisaig, Nova Scotia, by MCLEARN (1924). The holotypes of these species were kindly lent to me for study by the Geological Survey of Canada, Ottawa. *Palaeosolen amii* MCLEARN, 1924, GSC holotype 6026, does not seem to belong to *Palaeosolen*. The posterior end is somewhat expanded and rounded. The other species, *Palaeosolen antigonishensis* MCLEARN, 1924, GSC holotype 6025, seems to be a *Palaeosolen*. The specimen, however, is poorly preserved.

*Palaeosolen ordovicicus* n.sp.

Pl. 1, Figs. 1, 3.

HOLOTYPE: PMO no. 73719a; one left valve, anterior end missing. Leg. G. Henningsmoen, 1960.

TYPE LOCALITY AND HORIZON: Bratterudstranda (the beach below Tyrifjord Høyere Skole), Ringenrike. Middle Ordovician, 4ba.

MATERIAL IN ADDITION TO THE HOLOTYPE: PMO no. 73719b; one right valve (not complete), Bratterudstranda, Ringerike, 4ba. Leg. G. Henningsmoen, 1960. PMO no. 5003; posterior extremity of one right valve, Løken, Bygdøy, Oslo. Middle Ordovician. Leg. Th. Kjerulf (old collection). PMO nos. 74246–74251; fragments and impressions of several specimens, Bjørnsvikveien, Gyssestad, Asker, 4ba. Leg. J. F. Bockelie, 1965. PMO no. 74245; posterior extremity of one left valve, Nye Drammensvei, between Gyssestad and Slepanden, Asker, 4aβ (at the top). Leg. J. F. Bockelie, 1965. PMO no. 74242; one incomplete specimen, Bjørnsvikveien, Gyssestad, Asker, 4aa. Leg. J. F. Bockelie, 1965. PMO no. 74253; posterior extremity of one right valve, Bjørnsvikveien, Gyssestad, Asker, 4aβ (at the top). Leg. J. F. Bockelie, 1965.

DESCRIPTION: Shell soleniform, inequilateral, posterior end gaping. Umbo and anterior extremity not preserved. Ventral and cardinal margins subparallel; the ventral margin has a minute convexity posteriorly. Posterior margin truncated and slightly tilted upwards, indicating that the complete shell was gaping.

A plication extends from the umbo to the postero-ventral margin, thus dividing the shell into an antero-ventral and a postero-dorsal part. The antero-ventral part has fine growth lines nearly parallel to the ventral margin. Similar concentric growth-lines at the posterior extremity of the postero-dorsal part of the shell are probably a remnant of more extensive sculpture over the whole postero-dorsal part.

Hinge, dentition, and other interior characters unknown. Dimensions of the holotype: length 26.0 mm (not complete); height at posterior end 4.2 mm.

AFFINITIES: *P. ordovicicus* is well characterized as a *Palaeosolen* by the generic description given by HALL (1885). The holotype of the type species, *Palaeosolen siliquoides* (HALL and WHITFIELD, 1869), was kindly lent to me by the American Museum of Natural History, New York (AMNH no. 5370/1). The specimen is preserved as a steinkern and does not show the sculpture of the surface. However, a plication from umbo to the postero-ventral margin can be traced. There is also a line more or less parallel to the ventral margin which might be an indication of the mantle line. The fine striations on the postero-dorsal part of the shell which are shown in the drawing given by HALL (1885, Pl. 78, Fig. 33) cannot be seen on this specimen. A photo-

graph of the holotype is shown here (Pl. 1, Fig. 4). Of other species of *Palaeosolen* described from the Devonian, *Palaeosolen costatus* (SANDBERGER, 1854) (reproduced here Pl. 1, Fig. 2), bears most resemblance to the Ordovician species. It has been impossible to locate the holotype of *P. costatus*. The size of this species is given neither by SANDBERGER (1854) nor by BEUSHAUSEN (1895). *Palaeosolen ordovicicus* seems, in general, to be smaller than the Devonian species. It also has a greater length-height ratio and might have had the umbones placed more posteriorly than the Devonian forms.

It is possible that *Palaeosolen ordovicicus* ought to be placed in a new genus, but this will be postponed until more complete specimens are known.

REMARKS: The crowded concentric growth-lines at the posterior extremity on some of the shells suggest that they are fully grown adult individuals. None of the specimens show a complete valve, the holotype being the most complete. Of the others, only the posterior extremity is preserved. The height at the posterior end does not exceed 5 mm in any of the specimens.

It seems probable that specimens of the genus *Palaeosolen* lived similarly to Recent solenids, having a nearly vertical position in the sediment. The shape of the shell suggests this assumption. Also, the gaping posterior end suggests that the animal lived with extended siphons. The specimens in this material appear not to have been preserved *in situ*.

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## PLATE 1

The photographs were taken by Miss B. Mauritz and Miss L. Bryntesen. The specimens in Figs. 1 and 3 were whitened with ammonium chloride.

Fig. 1. *Palaeosolen ordovicicus* n.sp. Holotype. PMO no. 73719a; Bratterudstranda, Ringerike. Middle Ordovician, 4ba. Length: 26.0 mm;  $\times$  4.3.

Fig. 2. *Palaeosolen costatus* (SANDBERGER, 1854). Reproduced (and reduced  $\times \frac{3}{5}$ ) from BEUSHAUSEN, 1895, Pl. 18, Fig. 14. Singhofen, Germany. Lower Coblenzian beds, Lower Devonian.

Fig. 3. *Palaeosolen ordovicicus* n.sp. PMO no. 5003; Löken, Bygdøy, Oslo. Middle Ordovician. Height at posterior end: 4.2 mm;  $\times$  7.5.

Fig. 4. *Palaeosolen siliquoides* (HALL and WHITFIELD, 1869). Holotype. AMNH no. 5370/1. South Schoharie county, New York. Hamilton group, Middle Devonian. Length: 65 mm;  $\times$  1.1.

PLATE 1

