

PSEUDOVENTIDIA CHARNWOODENSIS - A NEW PRECAMBRIAN ARTHROPOD FROM  
CHARNWOOD FOREST, LEICESTERSHIRE

by

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Summary

A new fossil from Charnwood Forest interpreted as an impression of a new primitive arthropod *Pseudovendia charnwoodensis* is described and placed in the Family Vendomiidae.

Introduction

A Precambrian fossil was discovered recently by one of the authors (H.E.B.) on a loose block in the Outwoods, near Loughborough, in the northeastern part of Charnwood Forest. The block matches the lithology of the adjacent Woodhouse Beds crag, from which other Precambrian fossils have been recorded (Ford 1968, Boynton 1978), and matches the lithology of the other outcrops of the Woodhouse Beds with *Charnia masoni* and *Charniodiscus concentricus* described by Ford (1958, 1963, 1968). The fossil differs significantly from those described previously.

Affinities

The interpretation of the new fossil is difficult. Viewed from the blunt, ragged end it could be taken as an impression of an immature stage of some variety of Pennatulid such as *Charnia*, but no Pennatulid yet described has a single large apical lobe. Viewed from the other, more rounded, end it suggests the thorax and tail of an arthropod. Comparison with other Pennatulids and arthropods, such as the members of the Family Vendomiidae discussed below, leads the authors to regard the new fossil as a new form of primitive arthropod.

Correspondence with Professor M.F. Glaessner and Dr. Richard Jenkins of the University of Adelaide, who have been able to compare photographs and a latex mould with their extensive collections of Precambrian fossils from Ediacara, (South Australia) and elsewhere, has supported the arthropod interpretation. The only comparable Precambrian fossils known so far are the members of the family Vendomiidae recorded in Russia and Australia to which the new fossil is herein referred. The Vendomiidae have been placed in the phylum Arthropoda by Keller and Fedonkin (1976).

Systematic Description

PHYLUM ARTHROPODA

Family Vendomiidae Keller (in Keller and Fedonkin, 1976)

Discussion

Rather inadequately defined, this family has been described as including small bilaterally symmetrical animals similar to trilobites and lacking a hard exoskeleton. The definitions of both family and genera are perhaps understandably poor in view of the problems of determining the significance of very faint markings on small impressions almost all in coarse sandstones. Glaessner and Wade (1971) and Keller and Fedonkin (1976) have both discussed these problems and have excluded the fossils from the Annelida on account of the large head, a feature not known in annelids, and small number of segments. The new fossil is placed in the same

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1979, pp.175-177, Plate 20.

family, which hitherto has included four monotypic genera. The characteristics of these are summarised below:

*Vendia sokolovi* Keller (1969) (also figured by Sokolov (1973)): Ovoid disc; 14 mm long, 8 mm wide; anterior undivided, half-moon shaped with terminations merging with elliptical contour; central ridge 1 mm wide with five pairs of lateral branches 3-4 mm long and 0.8 mm wide; asymmetrical but distorted.

*Praecambridium sigillum* Glaessner and Wade (1966 and 1971): oval, disc-shaped, about 5 mm long and 4 mm wide; 3 to 5 pairs of small raised lobes confluent in centre; posterior pair enclose small triangular termination; anterior axial lobe rounded with faint radial branching ridges ending in a crenulated anterior margin; faint transverse depressions across axis link furrows between lobes suggesting segmentation.

*Vendomia menneri* Keller (in Keller and Fedonkin, 1976): oval, 4 mm long and 3 mm wide; two-thirds occupied by a horseshoe-shaped head, indistinctly separated from thorax; 5 pairs of segments gradually diminishing towards posterior; tail not clear; the axis divided longitudinally by a distinct furrow 0.2 mm wide.

*Onega stepanovi* Fedonkin (in Keller and Fedonkin, 1976): oval, egg-shaped in outline, 6 mm long and 3.8 mm wide; prominent segmented zone in narrower end; non-segmented lunate 'head' followed by 5 pairs of lobes oriented perpendicularly to the axis; divided by a wide and deep axial sulcus; outer ends of lobes are slightly curved towards the wide (anterior?) end of the body; lobes gradually diminish in length toward the narrow end.

The new fossil from Charnwood Forest differs from these in its considerably larger size, its lack of an oval disc or marginal flange, and its large posterior lobe. It is described as follows:

Genus *Pseudovendia* Boynton and Ford n. gen. (Plate 20)

Diagnosis: Roughly triangular lobate external mould, larger than other genera in the family, lacking oval disc or marginal flange, and with large ovate posterior lobe.

*P. charnwoodensis* Boynton and Ford n. sp. (Plate 20)

Diagnosis: Large roughly triangular lobate impression, anterior end indistinct (owing to organism being partly out of the plane of the bedding); three distinct pairs of lobes, possible fourth pair anteriorly (but too poorly preserved to be sure); lobes bluntly rounded at terminations; straight and slightly inclined posteriorly; lobes merge into indistinct axis; large ovate - rounded lobe at posterior end.

Holotype: Leicestershire Museums Accession No. 645'1978.

Type locality and horizon: The Outwoods, near Loughborough, Leicestershire, England, in Woodhouse Beds, Maplewell Series, Charnian Supergroup, late Precambrian.

Material: Only the holotype is known.

#### Preservation

The new fossil is an impression representing an external mould on a bedding plane of fine-grained slaty mudstone. Approximately 25 mm long and 20 mm wide, it consists of a rounded termination at one end, three pairs of lobes on each side and a ragged termination at the other end suggesting that the organism making the impression extended out of the plane of the bedding.

Measurements: 25 mm long and 20 mm wide; largest of paired lobes 6 mm long and 3 mm wide; ovate posterior lobe 7 mm long and 12 mm wide.

#### Stratigraphical significance

The occurrence of the new fossil supports, but does not confirm, the assignation of the Charnian Supergroup to the late Precambrian, Vendian or Upper Riphean of Russia which is broadly equivalent to the Ediacaran of Australia.

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*Pseudovendia charnwoodensis* Boynton and Ford. Holotype.  
From the Precambrian Woodhouse Beds, Outwoods, Charnwood Forest x 2,  
showing ovate posterior lobe, and posteriorly inclined paired segmental lobes.