https://doi.org/10.26749/rstpp.106.21

[*Manuscript received 16 April 1971*

A MIDDLE CAMBRIAN XIPHOSURAN(?) FROM WESTERN TASMANIA

by

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(with five figures)

ABSTRACT

An arthropod from the Que River Beds of western Tasmania is tentatively referred to the Order AGLASPIDA Walcott, of the Sub-class XIPHOSURA Latreille.

INTRODUCTION

The purpose of this note is to record the discovery of a Middle Cambrian arthropod, probably belonging to the Order AGLASPIDA Walcott. It was found by Mr P Symonds, a geology student at the University of Tasmania, and is lodged in the collections of the Geology Department of that University (UTGD 89857 *a, b*).

Counterparts of one specimen were collected from black shale (Que River Beds of Gee *et al.*, 1970) immediately north of the Que River on the western side of the Murchison Highway about 22 km north of Tullah, western Tasmania. The fauna accompanying the specimen includes agnostids (at present being studied by J. Jago), hydroids (Quilty, 1971), inarticulate brachiopods (*Micromitra* sp.), and abundant sponge spicules (*Protospongia* sp.). Jago (*pers. comm.*) reports *Ptychagnostus* (*Ptychagnostus*) *stenorrhachis* (Grönwall), *Diplagnostus* n.sp., *Hypagnostus* sp., a species with a *Ptychagnostus*-like pygidium and an almost entirely effaced cephalon, which may belong to *Ptychagnostus* or possibly *Cotalagnostus*, plus at least three other species. All of these are consistent with correlation with the *Ptychagnostus punctuosus* or *nathorsti* Zones of the Swedish succession.

Preservation of the fauna is generally poor. Agnostids are usually obvious as three-dimensional moulds. However, the aglaspid is a two dimensional film of black carbon on dark grey shale on which features are expressed by varying densities of the carbon film. The difference in mode of preservation suggests that the organism did not have a hard exoskeleton as did the agnostids, but was covered by a relatively thin cuticle that was preserved in anaerobic conditions.

Figures 1 and 2 are photographs of the counterparts and Figures 3 and 4 are outline drawings of the respective specimens. Figure 5 is a reconstruction of the animal based on the description and interpretation outlined below.

SYSTEMATICS

Description

The specimen is 14 mm long and consists of a trapezoid prosoma, an opisthosoma of eight articulated segments (seven are clearly visible and the eighth may be inferred as stated below), and a posterior shield of ankylosed segments; there is no visible telson.

The prosoma has parallel, almost straight anterior and posterior margins that are about 2.5 and 7 mm long, respectively, and 5 mm apart. These are joined by straight lateral margins. There is no extension of the genal angles into genal spines and no other cephalic structures are preserved on the prosoma.

The articulated part of the opisthosoma has seven clearly preserved segments. On counterpart 89857*a* there is a spine ('*s*' on Fig. 3) projecting to the right, posterior to the obviously segmented portion. Immediately anterior to this, there is a dark area on each specimen that may mark the posterior boundary of another segment. This shows up on both specimens but details are clear on neither. If this is interpreted as an eighth segment, classification is simplified. The segments decrease uniformly in width from 6 mm for the anterior one, to 5 mm for the posterior one. The anterior-posterior length of the individual segments may decrease a little from the front to the back. Each segment is distinguished from the one behind it by a film of carbon much denser than normal at its posterior margin. Limits of the dense carbon film are shown on Figure 3. The greater density of the film in this vicinity is perhaps explained if each segment is thicker at the posterior margin, or if the cuticle at the posterior margin is folded under to form two layers, as appears to be the case on the thorax or abdomen of most arthropods.

Details of segmentation are not visible within the abdominal shield, which consists of ankylosed segments—three or four if the specimen is an aglaspid. Three rough spines on one side of the shield suggest that it may consist of three segments. Clear indication of a telson is not apparent, although on one of the counterparts there is a darkened midline, wholly within the shield and not projecting beyond it. This dark midline does not consist of the usual dull black carbon, but is shiny and may be fortuitous inorganic mineral matter.

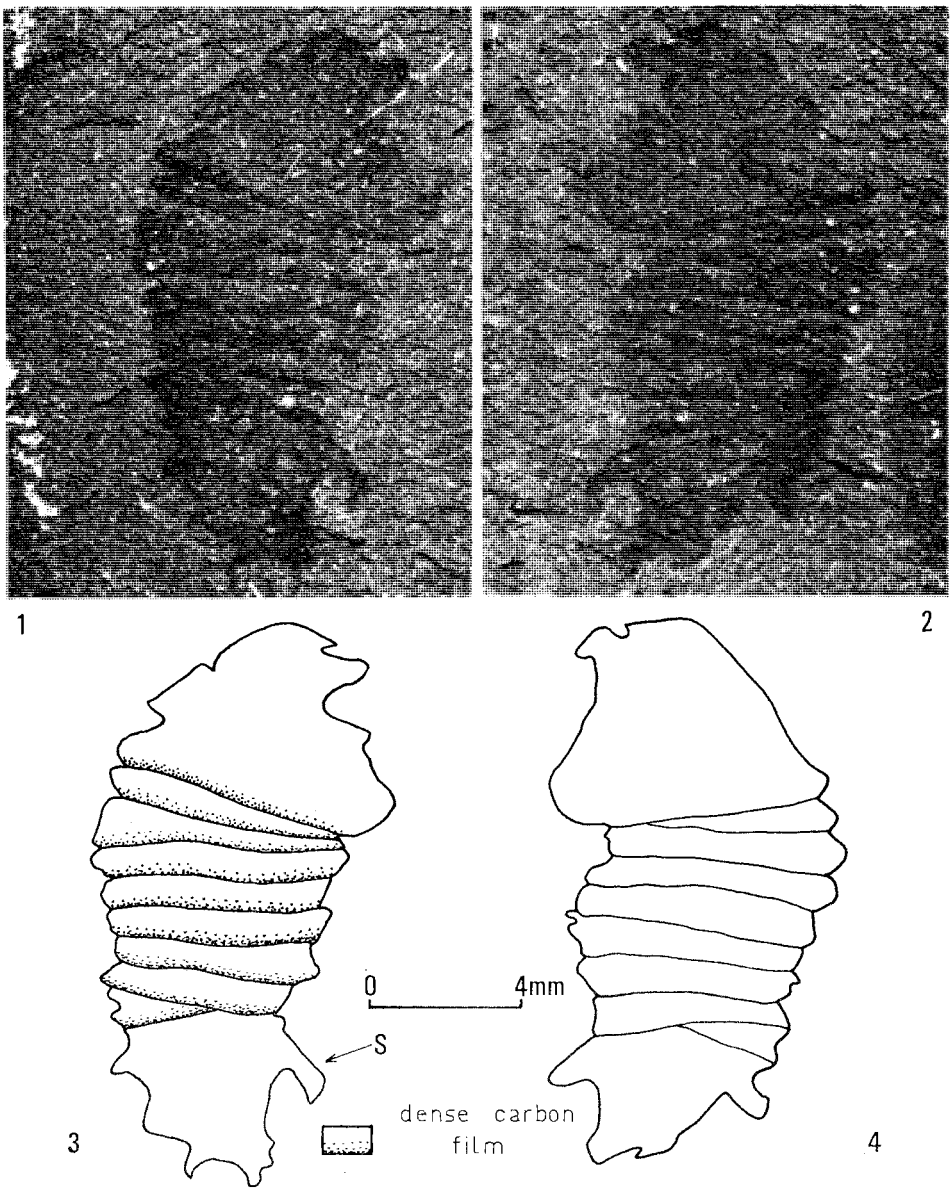
Discussion

The closest described taxon is probably *Beckwithia* Resser, although if the Tasmanian specimen does belong to that genus, it is a different species from any so far included in *Beckwithia*. The assignation to *Beckwithia* is doubtful as that genus

seems to have a tough exoskeleton, not the soft covering envisaged for the Tasmanian specimen. The specimen is not well enough preserved for detailed taxonomy, and is reported solely because it seems to be the first record of an aglaspid outside Sweden or North America.

ACKNOWLEDGMENTS

Most of the work involved in the preparation of this paper was carried out using research funds of the Geology Department, University of Tasmania. The University of Tasmania supplied initial photographic facilities but final photographs and typing services used were supplied by West Australian Petroleum Pty Ltd. The assistance of both bodies is gratefully acknowledged. Mr M. R. Banks, Geology Department, University of Tasmania, was extremely helpful with discussions early in this work.



FIGS 1, 2.—Aglaspid(?) as preserved. UTGD 89857 a, b.
FIGS 3, 4.—Outline drawings of the above photographs.

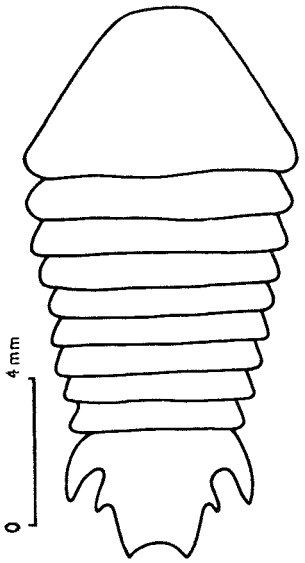


FIG. 5.—Reconstruction of the dorsal aspect of the skeleton.

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