

TRANSACTIONS  
OF THE  
ROYAL SOCIETY OF NEW ZEALAND

ZOOLOGY

VOL. 6

No. 10

MAY 19, 1965

A New Species of *Periplexis* (Sphyrriidae, Copepoda) from the  
Southern Ocean

By G. C. HEWITT,

Zoology Department,

Victoria University of Wellington

[Received by the Editor, July 28, 1964.]

*Abstract*

Two specimens of the genus *Periplexis*, obtained from *Bathylagus antarcticus* taken in deep water in the Bellinghausen Basin of the South Pacific by the U.S.N.S. "Eltanin", belong to a new species which is chiefly characterised by the large number of horns borne on the posterior part of the cephalothorax, the absence of respiratory cylinders and the absence of lobing in the genital and posterior processes.

DURING a recent survey in the Southern Pacific, the scientific teams aboard the U.S.N.S. "Eltanin" obtained two specimens of the genus *Periplexis* on two specimens of *Bathylagus antarcticus* taken at a depth of 390–510 fathoms in the Bellinghausen Basin at 50° 36' South, 130° 20' West, using a 3m Isaacs-Kidd midwater trawl on 25/6/64. Both specimens appeared to be mature females, although in both cases the egg strings had suffered damage, in one case being small and without eggs, in the other larger but broken off posteriorly and once again devoid of eggs. Unfortunately, neither specimen had the male attached.

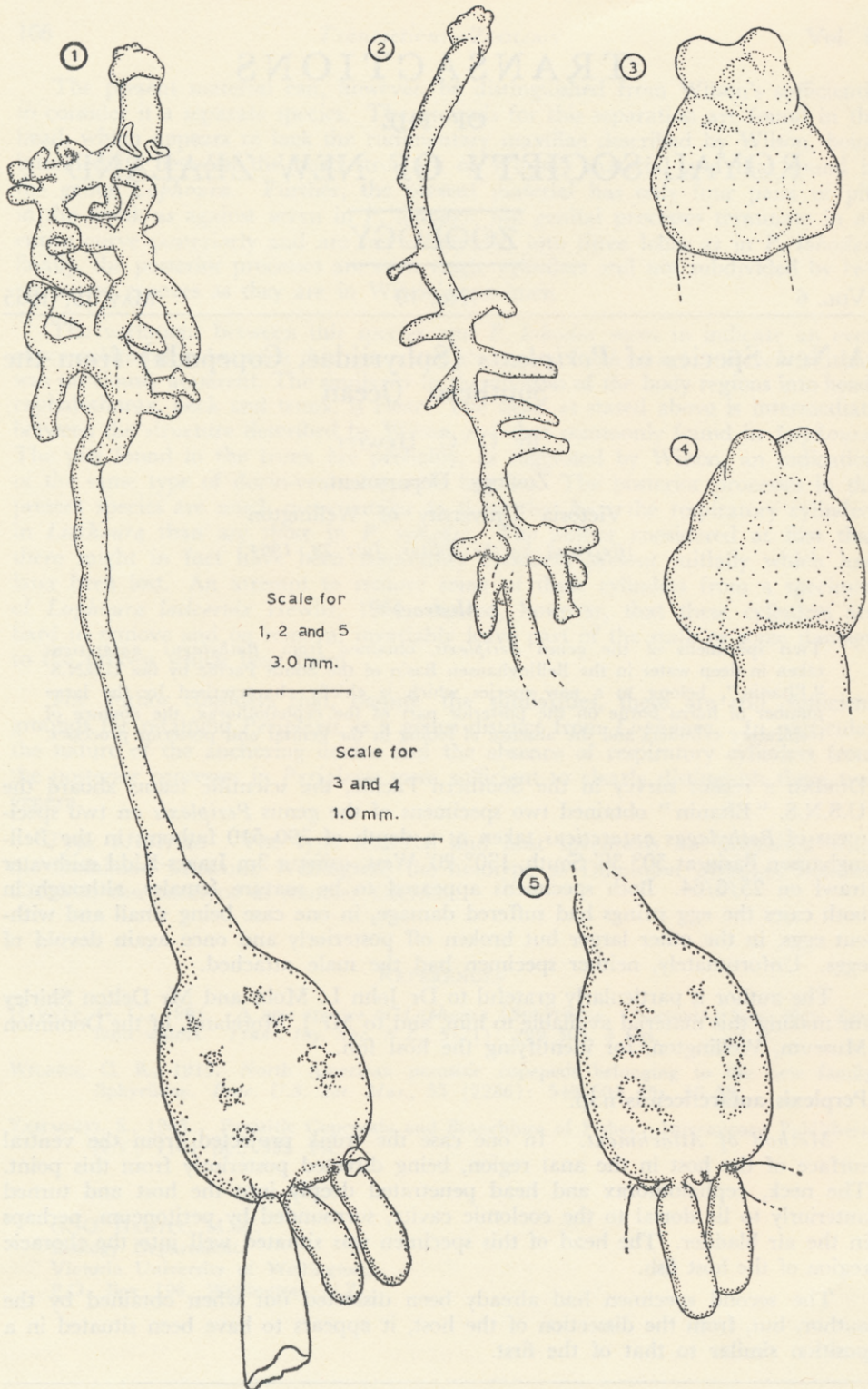
The author is particularly grateful to Dr John L. Mohr and Mr Delton Shirley for making this material available to him, and to Mr J. Moreland, of the Dominion Museum, Wellington, for identifying the host fish.

*Periplexis antarcticensis* n.sp.

*Method of Attachment.* In one case the trunk projected from the ventral surface of the host in the anal region, being directed posteriorly from this point. The neck, cephalothorax and head penetrated deeply into the host and turned anteriorly to lie dorsal to the coelomic cavity, surrounded by peritoneum, perhaps in the air bladder. The head of this specimen was situated well into the thoracic region of the host fish.

The second specimen had already been dissected out when obtained by the author, but, from the dissection of the host, it appears to have been situated in a position similar to that of the first.





*Periplexis antarcticensis* n.sp.

FIG. 1.—Holotype: ventral aspect. FIG. 2.—Paratype: head, neck and anchor. FIG. 3.—Head; dorsal aspect. FIG. 4.—Head; ventral aspect. FIG. 5.—Trunk of holotype: dorsal aspect.



*Description.* Head rounded (1.5mm to 1.6mm x 1.4mm to 1.3mm), well separated from the rest of the cephalothorax by a sharp groove. The first antennae may be represented by the two very shallow posterior swellings on the dorsal surface or by two shorter swellings which are immediately anterior to these. These more anterior swellings may, however, represent the second antennae, since the mouth is situated apically, at the end of a small medial swelling which has its origin some distance anterior to these swellings. A pair of nodules, whose combined bases are three-fifths the width of the head, are situated anteriorly and somewhat ventrally, immediately below the mouth.

Cephalothorax, excepting the separated head region, much shorter in the holotype than in the other specimen (1.9mm to 4.0mm); in the former the width is uniform at 1.2mm but in the latter it widens anteriorly, being 0.6mm posteriorly and 0.9mm anteriorly.

The next part of the body, which could equally be regarded as the posterior part of the cephalothorax or the anterior part of the neck, since it is continuous with both, forms a complex anchoring structure. In both specimens it is about 9mm long, with lateral horns, ranging from a mere bump to 3mm in length, given off at irregular intervals. In the holotype there are 15, and in the paratype 12 of these horns. In each case the three most posterior horns come off in different directions from the same level, and each of these three horns show a tendency to be three-branched. In the holotype the main stem of this region is tortuous, so that the distance from its anterior to its posterior end is reduced to 6mm, although its horns are distributed in such a way that its total width including the horns (4.5mm) is little greater than in the paratype, in which this stem is sublinear.

The neck region is long and narrow, being about 18mm long in each specimen, with a width of 1.4–1.8mm where it meets the trunk, narrowing to 0.6–0.5mm medially and expanding again to 0.8mm anteriorly.

The trunk is suboval (6.7mm to 7.2mm x 5.6mm to 4.5mm) being a little wider posteriorly than anteriorly. It bears two rounded genital processes postero-ventrally which overhang the egg strings. Posteriorly, on either side of the abdomen, it bears two cylindrical processes, rather similar to the processes which bear the respiratory cylinders in the genus *Lophoura*. These are 4.0mm long by 1.2mm wide and are attached to the trunk by a short stalk. The trunk has four dorso-ventral pits, which are plainly visible on the ventral surface and less distinct on the dorsal, situated in two longitudinal rows midway between the midline and the lateral margin of the trunk. Presumably these are produced by the contraction of dorso-ventral muscles as in *Lophoura*.

The abdomen is small (0.6mm x 1.0mm), rounded posteriorly and fused with the trunk.

*Colouration.* Both specimens are yellowish-brown in alcohol, except the neck, cephalothorax and head, which are white.

#### DISCUSSION

Only one specimen of the genus *Periplexis* has previously been taken, this being *Periplexis lobodes* Wilson, 1919, taken from *Alepocephalus agassizii* caught at a depth of 1,000 fathoms, off the coast of New Jersey.

The present specimens can be recognised as belonging to Wilson's genus *Periplexis* by the nature of the horns on the cephalothorax and by the cylindrical posterior processes attached to the trunk by a short stalk.



The present material can, however, be distinguished from Wilson's sufficiently to consider it a separate species. The grounds for this separation are found in the head, which appears to lack the rudimentary maxillae described by Wilson, being intermediate between the head structure of Wilson's material and that found in the genus *Lophoura*. Further, the present material has only four pairs of pits in the trunk as against seven in *P. lobodes*; the genital processes terminate in an entire curve posteriorly and are not subdivided into three lobes as in *P. lobodes*; finally, the posterior processes are each single cylinders and not subdivided by two transverse grooves as they are in Wilson's specimen.

The variations between this species and *P. lobodes* seem to indicate an even closer relationship between this genus and the genus *Lophoura* (= *Rebelula*) than was previously apparent. The similarity in the division of the body regions into head, cephalothorax, neck and trunk, is clear. The head as stated above is intermediate between the structure described by Wilson and that commonly found in *Lophoura*. The pits found in the trunk are probably, as suggested by Wilson, an indication of the same type of dorso-ventral muscle bundles. The posterior processes in the present species are much more similar to those that bear the respiratory cylinders in *Lophoura* than are those in *P. lobodes*. The author considered at first that there might in fact have been respiratory cylinders present initially which had later been lost. An attempt to remove some of these cylinders from a specimen of *Lophoura laticervix* Hewitt, 1964, showed, however, that these cylinders are hard to remove and on removal invariably leave part of the stalk or some damage to the process which bear them.

The author considers that, despite the similarities, there are still sufficient grounds for retaining *Periplexis* as a genus distinct from *Lophoura*. In particular the nature of the anchoring device and the absence of respiratory cylinders from the posterior processes in *Periplexis* seem sufficient to clearly distinguish these two genera.

*Type Material.* The type material and host specimens are deposited with the Dominion Museum, Wellington, the holotype as Dominion Museum number CR1538, the paratype as number CR1539.

#### REFERENCES

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G. C. HEWITT, M.Sc.,  
Zoology Department,  
Victoria University of Wellington,  
P.O. Box 196, Wellington, N.Z.