

AUSTRALASIAN ANTARCTIC EXPEDITION
1911-14.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, D.Sc., B.E.

SCIENTIFIC REPORTS,
SERIES 'C.—ZOOLOGY AND BOTANY.
VOL. V. PART 6.

CUMACEA AND PHYLLOCARIDA

BY

W. T. CALMAN, D.Sc.
(BRITISH MUSEUM, NATURAL HISTORY.)

WITH TWO PLATES.

PRICE: ONE SHILLING AND THREEPENCE.
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Printed by William Applegate Gullick, Government Printer, Phillip-street, Sydney.—1918.

ISSUED JULY 1ST, 1918.

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CUMACEA AND PHYLLOCARIDA.

By W. T. CALMAN, D.Sc. (BRITISH MUSEUM, NATURAL HISTORY).

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(Plates XIX and XX.)

THE collection dealt with in this report, although a very small one, is by no means devoid of interest. It comprises a new species of *Diastylis*, very distinct from any hitherto known from the Antarctic, and showing some resemblance to species inhabiting the North Pacific. Another *Diastylis* is referred to a species already known, of which it represents at least a very marked variation. The remaining Cumacea and the solitary *Nebalia* serve to fill in a very wide gap in the known distribution of the respective species. All the specimens were obtained near the Main Base of the expedition at Adelie Land. The following are particulars of the localities:—

Boat Harbour, Commonwealth Bay. Dredging, 5 fathoms. 1st June, 1912.

Nebalia longicornis.

Station I. Lat. 66° 50' S., Long. 142° 6' E.; 358 fathoms. 26th December, 1913.

Cyclaspis gigas.

Station II. Lat. 66° 55' S., Long. 145° 21' E.; 318 fathoms. 28th December, 1913.

Cyclaspis gigas, *Diastylis Mawsoni*, *D. Helleri*.

CUMACEA.

CYCLASPIS GIGAS *Zimmer*.

Cyclaspis gigas *Zimmer*, Zool. Anz. XXXI, 1907, p. 367; id. Deutsche Südpolar Exped. XIV, Zool. vi, 1913, p. 441, pl. i, figs 1-3, text-figs. 1 and 2; Stebbing, Das Tierreich, Cumacea, 1913, p. 38; Calman, Brit. Antarctic ("Terra Nova") Exped. Zool. III, No. 5, 1917, p. 146.

Occurrence.—Stat. I, 1 ♀; Stat. II, 3 ♀.

Remarks.—The ovigerous female described by *Zimmer* was only 15 mm. in length, but an ovigerous specimen in the present collection is 20 mm. long, and some of the immature specimens exceed 18 mm. Nevertheless the agreement with *Zimmer's*

description and figures is very close, almost the only noteworthy discrepancy being that the endopod of the uropods bears on its inner edge a series of spines, up to nine in number, of which only the distal one persists in the specimen figured by Zimmer. The elevated portions of the surface of the carapace are rugose. As in the specimen recorded from the "Terra Nova" Expedition I can find no trace of corneal lenses on the ocular lobe.

Zimmer has figured a young specimen (8 mm. long) smaller than the holotype of Hansen's *C. glacialis*, but agreeing with the adult in the sculpturing of the carapace. None of the specimens that I have examined show any marked difference in this character. It seems not impossible, however, that a re-examination of Hansen's type would show some trace of the separation of "Höcker 2" from "Höcker 3" (in Zimmer's terminology), which separation is, at present, the only character available for distinguishing *C. gigas* from *C. glacialis*.

Distribution.—Lat. 66° 2' S., Long. 89° 38' E.; 385 metres ("Gauss"). Lat. 77° 46' S., Long. 166° 8' E.; 300 fathoms ("Terra Nova").

DIASTYLIS MAWSONI, *sp.n.*

(Plate XIX.)

Occurrence.—Stat. II, 3 ♀.

Description.—Immature female; total length, 18 mm. (An ovigerous female measures 16 mm.)

Carapace inflated, about one-third of total length, its height about two-thirds and its width about three-fourths of its length. Dorsal surface strongly vaulted in its posterior third, flattened and sloping downwards anteriorly. Surface marked with ridges which, in places, pass into an irregular reticulation, partly filling up the spaces between the main ridges. The strongly convex posterior part of the dorsal surface has two very prominent longitudinal ridges converging forwards, between which is a deep depression. From these, three oblique ridges pass downwards and forwards on the side of the carapace, the most anterior defining the flattened area of the dorsal surface. The third ridge is less regular in its course than the first and second, and behind it are some irregular reticulations which partly unite to outline a fourth oblique ridge. The lower ends of the first and second oblique ridges join with a somewhat irregular horizontal ridge, which runs forward to form a lateral keel on the pseudorostrum. A second horizontal ridge between the first and the lower margin of the carapace also runs a zigzag course, and is united with the first by a short vertical ridge. The flattened area of the dorsal surface is very rugose, and on it are a pair of longitudinal ridges close together, each giving off a forwardly-curved lateral branch. The pseudorostrum is short, obtusely pointed as seen from above, with its lateral margins pectinate. There

is no antennal notch and the anterior part of the lower margin of the carapace is pectinate. The ocular lobe is minute, without trace of an eye.

The pleural plates of the second free thoracic somite are small and rounded. The postero-lateral angles of the fifth somite are rounded.

The abdomen, including the telson, is longer by about one-fourth than the cephalo-thoracic region. The somites have a dorsal median ridge and paired dorso-lateral and ventro-lateral as well as some less marked transverse ridges.

The telson is a little more than twice as long as the last somite, the post-anal portion occupying more than one-third of its length. The basal portion has a flattened dorsal surface with dentate lateral margins. The narrower post-anal portion bears five or six pairs of rather long lateral spines.

The antennules have the last segment of the peduncle slender and twice as long as the preceding.

The third maxillipeds have the basis hardly widened distally, its distal outer corner slightly produced, the merus narrower than the ischium, and with two strong teeth on its ventral surface distally.

The first legs have the basis shorter than the distal segments together, the last three segments slender, successively increasing in length. The second legs have the carpus longer by about one-third than the two distal segments together. The posterior legs are stout. The third and fourth have each a minute exopod of two segments.

The peduncle of the uropods is a little longer than the telson, with rather slender spines on inner side. The endopod is longer than the exopod, with eight to twelve spines on inner edge, the first segment nearly as long as the second and third together.

Remarks.—According to the very artificial system of classification adopted by Stebbing in his revision of the Cumacea (Das Tierreich, 1913), this species would probably be placed in the genus *Adiastylis*, since the post-anal portion, being less than half of the total length of the telson, can hardly be termed "long." Of the species brought together in that genus the only one having any special resemblance to *D. Mawsoni* is *A. costatus* (Bonnier), which has oblique ridges on the carapace. It differs, however, in the arrangement of these ridges, in the absence of exopods on the third and fourth legs, and in a number of other characters. A close resemblance to *D. Mawsoni* can be traced within the restricted genus *Diastylis* (as used by Stebbing) in the group of species distinguished by the presence of vestigial exopods on the third and fourth legs of the female. This group includes five species, three of which are from the Alaskan area of the North Pacific, and the others from South Georgia and the Straits of Magellan. Two of the Alaskan species, *D. Dalli* and *D. bidentata*, resemble *D. Mawsoni* further in the general pattern of the obliquely ridged carapace. In view of the well-known affinity of certain elements of the North Pacific fauna with that of the sub-antarctic

region; it is possible that this resemblance may have some significance. It is obviously undesirable, however, to attempt any large deductions from the more or less trivial indications of relationship between individual species in a genus so large and so widely distributed as *Diastylis*; and it is doubly undesirable in the case of inconspicuous organisms that have been so little collected, except in European seas, as have the Cumacea.

DIASTYLIS HELLERI Zimmer.

(Plate XX.)

D. helleri, Zimmer, Zool. Anz. XXXI, 1907, p. 221; id. Wiss. Ergeb. Schwed. Südpolar Exped. VI; Lief. 3, 1909, p. 15, pl. vi, figs. 84-96; Calman, Deuxième Expéd. Antarct. Française, Cumacés, 1917, p. 1.

Holostylis Helleri, Stebbing, Das Tierreich, Cumacea, 1913, p. 140.

Occurrence.—Stat. II. 1 ♀ (immature).

Remarks.—The single specimen (which is much damaged) differs considerably in appearance from Zimmer's description and figures, and from a syntype of his species in the Museum collection. It might indeed have been regarded, without much hesitation, as representing a distinct species characterised by the nodular excrescences on the carapace, were it not that certain specimens obtained on the voyage of the "Nimrod" and presented to the Museum by Sir Ernest Shackleton stand almost exactly midway, in respect of this character, between Sir Douglas Mawson's specimen and those described by Zimmer. The "Nimrod" specimens differ from that now recorded in having the surface of the carapace much more spinous, but on the other hand they agree with it and differ from Zimmer's syntype in having the pseudorostrum longer than the antennule, and the basal portion of the telson somewhat longer relatively to the post-anal portion. The single specimen which I have recorded, from the second French Antarctic Expedition * is not now at hand for comparison, but according to my notes it agreed very closely with the "Nimrod" specimens.

In describing this species, Zimmer called attention to its resemblance to the Arctic *D. spinulosa* Heller. It is, therefore, of special interest to find it presenting a series of variations parallel to those that, according to Hansen, link *D. spinulosa* with *D. nodosa* Sars.

Stebbing has removed this species to a new genus, *Holostylis*, which he makes the type of a new family *Holostylidæ*, having as its sole distinguishing character the unsegmented endopod of the uropods.

Distribution.—South Georgia, 12-75 metres (Swedish S. Pole Exp.). Lat. 64° 49' 35" S., Long. 63° 29' 4" W.; 70 metres ("Pourquoi Pas?"). Cape Royds, 7-50 fathoms ("Nimrod").

* The text of my note on this species in the Report of the French Expedition has apparently suffered from some accident now inexplicable. I must disclaim responsibility for the statement that Dr. Zimmer himself collected the species at South Georgia and the implication that he described the specimens obtained by the "Nimrod."

PHYLLOCARIDA.

NEBALIA LONGICORNIS G. M. Thomson.

N. longicornis G. M. Thomson, Ann. Mag. Nat. Hist. (5) IV, 1879, p. 418, pl. xix, figs. 7-9; Thiele, Wiss. Ergebn. D. Tiefsee Exp. "Valdivia" VIII, 1904, p. 9, figs. on pl. iv; id. D. Südpolar Exp. 1901-1903, IX, 1905, p. 66, pl. ii, figs. 14-17; id. National Antarctic ("Discovery") Exp. 1901-1904, Nat. Hist. III, 1907, Leptostraca p. 1, text-figs.; Calman, Brit. Antarctic ("Terra Nova") Exp. Zool. III, No. 5, 1917, p. 156.

Occurrence.—"Boat Harbour, Commonwealth Bay, 5 fathoms." 1 ♀.

Remarks.—The specimen is a female carrying eggs, and measures 6.0 mm. in length of the lateral wings of the carapace. The rostral plate has the proportion of length to breadth as 2.04 : 1; the ocular peduncle has a very prominent and pointed sensory tubercle; and the fourth segment of the antennule carries one spine and seven or eight setæ. The specimen therefore differs little from those already recorded from the Ross Sea area ("Discovery" and "Terra Nova") on the one hand and from Wilhelm Land ("Gauss") on the other, and, with them, would appear to conform to Thiele's definition of his subspecies *magellanica*. If this subspecies be maintained (cf. Calman, 1 c.), the present specimen may be adduced in evidence for its circumpolar distribution and for the comparative uniformity of its characters throughout its wide range.

EXPLANATION OF PLATES.

Plate XIX.

- Fig. 1.—*Diastylis Mawsoni*, sp.n. Immature female, from the side.
- Fig. 2.—*Diastylis Mawsoni*, sp.n. Anterior portion of body from above.
- Fig. 3.—*Diastylis Mawsoni*, sp.n. Posterior somites of abdomen, with telson and uropod.

Plate XX.

- Fig. 4.—*Diastylis Helleri*, Zimmer. Anterior portion of body from the side. A. Syntype from South Georgia. B. Specimen from Cape Royds. C. Specimen obtained by Australasian Expedition (the outline of the carapace slightly restored).

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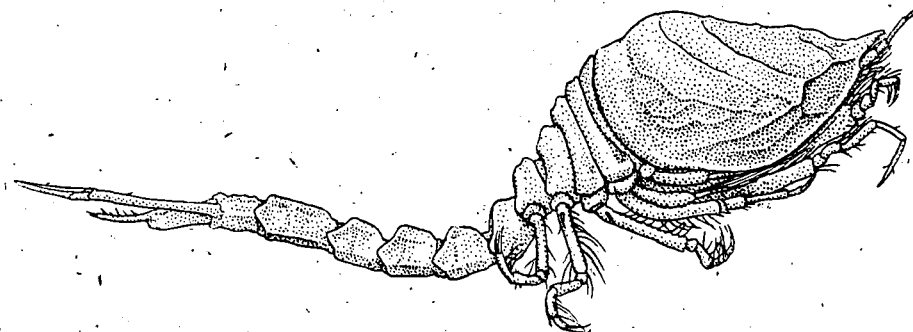


Fig. 1.

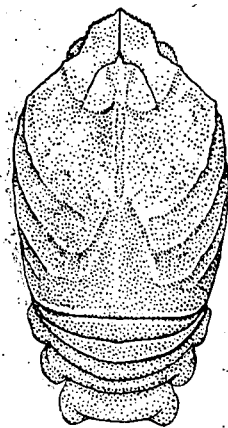


Fig. 2.

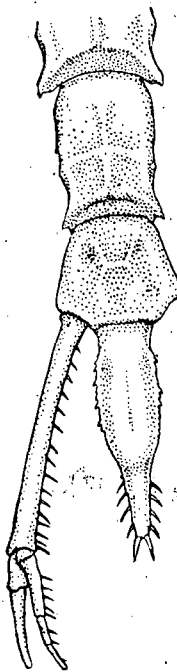


Fig. 3.

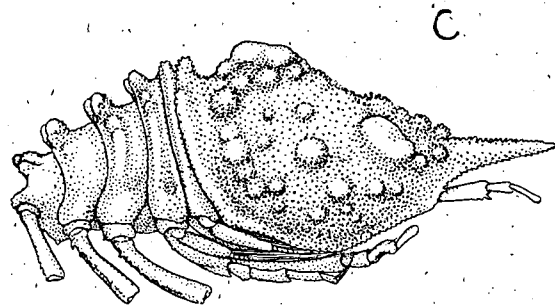
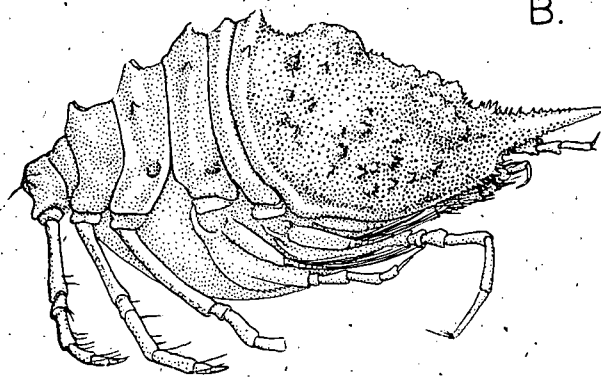
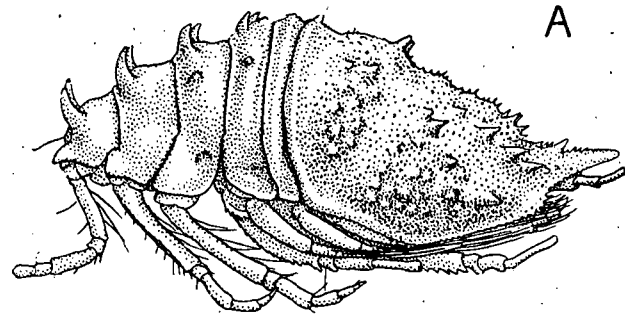


Fig. 4.

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