Bage, F.
1938

AUSTRALASIAN ANTARCTIC EXPEDITION

1911-14.

UNDER THE LEADERSHIP OF SIR DOUGLAS MAWSON, O.B.E., B.E., D.Sc., F.R.S.

SCIENTIFIC REPORTS.

SERIES C.—ZOOLOGY AND BOTANY.

Edited by Professor T. Harvey Johnston,
University of Adelaide.

VOL. II. PART 6.

CRUSTACEA DECAPODA

(in part).

BY

FREDA BAGE, M.Sc., F.L.S.
PRINCIPAL OF THE WOMEN'S COLLEGE, UNIVERSITY OF QUEENSLAND.

WITH ONE PLATE.

PRICE: THREE SHILLINGS.

Wholly set up and printed in Australia by
DAVID HAROLD PAISLEY, GOVERNMENT PRINTER, SYDNEY, NEW SOUTH WALES, AUSTRALIA.

1938.

*12216—A

CONTENTS.

CRUSTACEA DECAPODA

(NATANTIA AND REPTANTIA IN PART.)

By FREDA BAGE, M.Sc., F.L.S., Principal, Women's College, University of Queensland.

With Plate IV.

INTRODUCTION.

The Decapod Crustacea obtained by the Australasian Antarctic Expedition, with the exception of the Brachyura already described by Dr. Mary Rathbun, are the subject of this report. They are few in number, only six species, but are of considerable interest.

The collections were made (1) at the Main Base of the Expedition, Commonwealth Bay, King George V Land, by Dr. J. Hunter, in 1912 and 1913, (2) during the cruise of the " Aurora " in the summer of 1913–14, and (3) at Macquarie Island by Mr. H. Hamilton.

There are three antarctic species :—*Chorismus antarcticus; Crangon antarcticus* var. *gracilis; Acanthephyra antarctica*, n.sp. The two first-named have been recorded many times previously, though their wider distribution is of interest, the third is a new species of a deep sea genus not previously recorded in Antarctic waters. It is the sixth species to be recorded from the Antarctic seas.

From the last dredging of the summer cruise off the coast of Australia, the deep sea form, *Willemoesia leptodactyla*, was obtained.

There is only one species from Macquarie Island, *Munida subrugosa.*

One further species was collected off the coast of Tasmania, near Maria Island. This is a very beautiful Scyllarid of which I have been able to find no previous record, and which I have called *Arctus mawsoni*, n.sp.

The following are particulars of stations and localities where the species were obtained :—

Off Maria Island, Tasmania, 65 fathoms, 12th December, 1912—*Arctus mawsoni* n.sp.

Macquarie Island, 1913, probably littoral—*Munida subrugosa.*

Commonwealth Bay, King George V Land, 25 fathoms, 3rd September, 1912—*Chorismus antarcticus.*

Station I, Commonwealth Bay, lat. S. 66° 50′, long. E. 142° 6′, 22nd December, 1913, 354 fathoms—*Chorismus antarcticus*.

Station II (near Mertz Glacier Tongue), lat. S. 66° 55′, long. E. 145° 21′, 28th December, 1913, 318 fathoms—*Crangon antarcticus* var. *gracilis*.

Station VI, lat. S. 63° 13′, long. E. 101° 42′, 14th January, 1914, 870 fathoms—*Acanthephyra antarctica*, n.sp.

Station VII (off Drygalski Island), lat. S. 65° 42′, long. E. 92° 10′, 14th January, 1914, 60 fathoms—*Chorismus antarcticus*.

Station VIII (off Shackleton Glacier), lat. S. 66° 8′, long. E. 94° 17′, 27th January, 1914, 120 fathoms—*Chorismus antarcticus*.

Station IX (off Shackleton Glacier), lat. S. 65° 20′, long. E. 95° 27′, 28th January, 1914, 240 fathoms—*Crangon antarcticus* var. *gracilis*.

Station XI (off Shackleton Glacier), lat. S. 64° 44′, long. E. 97° 28′, 358 fathoms—*Crangon antarcticus* var. *gracilis*.

Station XIII (off Coast of Australia), lat. S. 35° 55½′, long. E. 134° 18′, 24th February, 1914, 1,800 fathoms—*Willemoesia leptodactyla*.

DESCRIPTIONS OF SPECIES.

Sub-order NATANTIA.

Tribe CARIDEA.

Family Acanthephyridae.

Genus Acanthephyra *Milne Edwards* 1837.

1. Acanthephyra antarctica n.sp. (Plate IV, figs. 1, 1a, 1b.)

Station VI.—31 specimens, 11 males, 20 females, 9 ovigerous. All these specimens are damaged in some degree, only two having the full number of appendages, and a few rostra and telsons complete.

These specimens were labelled as being bright red in colour when alive. The carapace is smooth with a slight anterior carina continued anteriorly into a long pointed rostrum slightly shorter in length than the carapace itself. The rostrum is straight in some specimens, in others at most very slightly and gradually curved upwards towards the tip. The dorsal surface of the rostrum bears a series of small teeth varying in number from twenty-five to twenty-nine, while the ventral surface has a constant number of five. Seventeen or more of the upper teeth are continuous from the posterior end of the rostrum, the rest being more widely separated, as are also the five lower teeth. The fifth or most posterior tooth of the lower series is opposite, or nearly so, the seventh tooth from the front end of the upper series.

The first and second abdominal somites are without a carina, the third very slightly carinated and produced posteriorly to a blunt tooth-like projection, the fourth and fifth with slight carination and less pronounced projections overlapping the more posterior somites. The telson equals in length the sixth abdominal somite. It is smooth, has no spines at the sides and narrows to an extremity bearing two large outer and two small inner spines, with a very small dorsal spine anterior to each of the large spines. (Fig. 1a.)

The specimens are all of large size, the ovigerous female shown in fig. 1 having the following measurements :—Total length, 150 mm.; length of carapace (orbital notch to centre of carapace), 36 mm.; length of rostrum, 34 mm.; length of abdomen, 85 mm.; length of third abdominal somite, 15 mm.; length of sixth abdominal somite, 20 mm.; length of telson, 20 mm.

The smallest specimen, a male, has a total length of 120 mm.

The walking legs are long and slender, the first two pairs chelate. The third maxillipeds reach to the tip of the stylocerite. In the only specimen with the third pair of walking legs complete, the merus has a process, small dorsally and longer ventrally, surrounding the base of the carpus. One ventral spine is present just behind the process, and five are present on the carpus. The second leg has similar spines, and the processes described above are present on the merus of the fourth and fifth legs as well as on the third.

As in the case of other Acanthephyridae there are exopodites present on all the walking legs. The gill formula is the same, the large number of gills being typical of the genus *Acanthephyra*. Another point of interest is the flattening of the first joint of the first antennae, which is hollowed out on the dorsal surface forming a concavity in which the eyes are situated.

In comparing this form with those described in the "Challenger" Reports (Macrura) the many differences seem to warrant it being recorded as a new species. *Acanthephyra sica*, the nearest geographical record, from New Zealand waters, has a different number of teeth on the rostrum, and much larger dorsal processes on the abdominal somites. It also has lateral spines on the telson. In some other respects *A. carina* resembles the present species, but in general appearance and structure of the rostrum and carapace there are many differences.

Acanthephyra is a deep sea genus very widely distributed. The present species was collected from only one station from a depth of 870 fathoms and in good numbers, and I can find no previous record on the genus in Antarctic waters.

Family HIPPOLYTIDAE.

2. CHORISMUS ANTARCTICUS *Pfeffer* 1887.

Hippolyte antarctica Pfeffer, Jahrb. Hamburg, Wiss. Anst., 4, 1887, 51, pl. 1, figs. 22–27.

Chorismus antarcticus Calman, Rep. Nat. Antarct. Exped. 1901–4, Nat. Hist., 2, Crust. Decap., 1907, 1; Lenz and Strunck, Deutsche Südpol. Exp., 15, (3), 1914, 318; Borradaile, Brit. Antarct. ("Terra Nova") Exped. 1910, Nat. Hist. Zool., 3, (2), 1916, 85.

A number of specimens were dredged from Commonwealth Bay, King George V Land, from Stations I, VII and VIII, and one damaged specimen was obtained from a seal in Commonwealth Bay.

The specimens agree closely with the detailed description of Calman. While the majority have rostra or telsons or both damaged, those with rostra present show slight differences in the arrangement of the teeth on the upper surface. Two teeth are present at the end of the rostrum in more than half the number. The outer edge of the antennal scale is straight in most of these, or at most is very slightly convex. The antennal scale is the same length as the rostrum in some specimens, but in some is a little longer or shorter, agreeing with Borradaile's description of the "Terra Nova" specimens. The sizes of the specimens are quite comparable with those of the "Discovery" collections, the males being considerably smaller than the females.

This valuable collection dredged from long. E. 142° 36′ to long. E. 92° 10′ extends considerably the recorded distribution of the species. In addition to the original South Georgia specimens, collections were obtained by the "Terra Nova" from long. E. 179° 3′ to long. E. 164° 12′, the "Discovery" winter quarters being within these limits. The present collection was obtained between 65° 42′ S. and 67° S. The most southerly record for the species is lat. S. 74° 25′ ("Terra Nova" Station 294). The dredgings have been from comparatively shallow waters (60–350 fathoms), but the single specimen from 500 fathoms described by Calman and the fine collection from Station I from 354 fathoms show that the species lives at very varying depths.

Family CRANGONIDAE.

3. CRANGON (NOTOCRANGON) ANTARCTICUS *Pfeffer* 1887 var. GRACILIS *Borradaile* 1916.

Crangon antarcticus Pfeffer, Jahrb. Hamburg., Wiss. Anst., 4, 1887, 45, pl. i, figs. 1–21; Ortmann, Proc. Ac. Philadelphia, 1895, pp. 177, 181, 190; Coutiere, Bull. Mus. Paris, 16, 1900, 240; Calman, Rep. Nat. Antarct. Exped., 1901–4, Nat. Hist., 2, Crust. Decap., 1907, 3; Lenz and Strunck, Deutsche Südpolar Exp., 15, (3), 1914, 324.

Crangon (*Notocrangon*) *antarcticus* Coutiere, C.R. Ac. Sci., 130, 1900, 1640.

Crangon (*Notocrangon*) *antarcticus* Pfeffer var. *gracilis*, Borradaile, Rep. Brit. Antarct. ("Terra Nova") Exped., 1910, Zool., 3, (2), 1916, 89.

Station II, 7 ♀, 6 ovigerous, 1 ♂; Station IX, 5 ♀, 3 ovigerous; Station XI, 4 ♀, 3 ovigerous, 2 ♂, 2 ?

Most of the specimens in the collection are larger than those described by Calman, the seven females from Station II measuring 90–120 mm. in total length as compared with 37·5–77 mm.—length of the "Discovery" specimens. The smallest specimen in this collection, a male, is 38 mm. in length. All the details and proportions however agree closely with the detailed description of Calman, and the lengths of the joints of the third maxillipeds are in the proportion of those described by Borradaile, leaving no doubt that this is the variety named by him.

The collection extends the known distribution of *C.* (*Notocrangon*) *antarcticus* var. *gracilis* from long. E. 145° 21′ to long. E. 95° 27′ practically filling in the gap between the furthest west of the "Terra Nova" Expedition, long. E. 164° 17′, and that of the German South Polar Expedition at Kaiser Wilhelm Land, and giving additional support to Borradaile's statement that "here we have a distinct local race."

Sub-order REPTANTIA.

Section PALINURA.

Tribe ERYONIDEA.

Family Eryonidae.

Genus Willemoesia *Grote.*

4. Willemoesia leptodactyla *Willemoes-Suhm.*

Willemoesia leptodactyla Willemoes-Suhm, Trans. Linn. Soc., London, Ser. 2, vol. I, 50; Spence Bates, Rep. Brit. Assoc., 1878; *idem*, Ann. Mag. Nat. Hist., ser. 5, 2, 1878, 280, 484.

Deidamia leptodactyla, Willemoes-Suhm, Notes from the "Challenger," Pt. 2; *idem*, Nature, VIII, May 15, 1873, p. 51.

Willemoesia leptochela, Willemoes-Suhm, Spence Bates, Rep. "Challenger," 24, 1888, 163, plates 18–20.

Station XIII, 1 ♂, incomplete.

This single specimen is 112 mm. long, the length of the longest of the "Challenger" specimens. The two first walking legs are missing, and the rostral spine seems to be broken off somewhat short. In other respects the specimen agrees closely with the "Challenger" description of *Willemoesia leptodactyla*, the spines on the outer margin of

the carapace differing somewhat in number, being eight, six, and twenty-three on the lateral margins respectively of the anterior, middle and posterior portions of the carapace. These approximate more nearly to the numbers in the male specimen described by Spence Bates, the sharp denticles over the carapace also resembling this specimen.

Some interest attaches to the distribution of this blind deep-sea form which has now been found off the south coast of Australia, the previous records being from the middle of the North and South Atlantic, and the South Pacific off the coast of South America. The specimen was obtained from a depth of 1,800 fathoms.

Tribe SCYLLARIDEA.

Family Scyllaridae.

Genus Arctus *Dana.*

Arctus, Spence Bates, Rep. "Challenger," 24, 1888, 68; Stebbing, S. African Crust., Part 4, Ann. S. African Mus., 6, 1908, 1.

Scyllarus, Fabricius, 1793, Stebbing (see above; for discussion on nomenclature).

5. Arctus mawsoni *n. sp.*

(Plate IV, figs. 2, 2a).

Dredged off Maria Island, Tasmania. 2 ♀ 1 ♂.

The three specimens in the collection are of very different sizes, the two females measuring in total length 92 and 74 mm. respectively, and the male 48 mm. The largest specimen is perfect, and is the one figured in the Plate, the others being slightly damaged and with some limbs missing.

Description of Female.—The carapace is very thick, strongly sculptured and marked into definite areas by tubercles and sharply-pointed spines thick at their bases. The gastral ridge is tuberculated and outlined by a double row of tubercles, the lateral margins also being formed by sharply defined tuberculate ridges. Two large spines are situated in the mid-line of the carapace, while the rostrum is represented by a very slight spine in the median anterior edge. Spines are present at each outer anterior corner of the carapace, and there are two supraorbital ones. The eyes are situated within the lateral margins of the carapace, and are set in deep orbits fringed with cilia.

The measurements of the carapace are as follows:—Length in mid-line 25 mm.; breadth of frontal margin 24 mm.; breadth between orbits 18 mm.; breadth at posterior border 21 mm.

The abdominal somites are tuberculated with definite arborescent markings on all the segments, and a tubercular central ridge on segments two to five. The telson has tubercular spines in the anterior half which is calcareous, the posterior half being membranous with squared end.

The appendages are characteristic of the genus. The first pair of antennae have a wide basal joint, the succeeding four joints becoming progressively more slender, terminated by two very short equal flagellae. The fourth and fifth joints bend back on one another, so that from the dorsal surface only the first three joints can be seen. The second pair of antennae has the characteristic fan-like appearance of the family. The first joint is small, the second has one large and two small teeth, the third is fan-like with three large cusps on the outer margin, and a diagonally curved ridge projecting to the anterior cusp of the fourth joint. The fourth and last joint has five large cusps at the anterior end, and two small ones on the inner sides. The walking legs are even, with the exception of the first pair which are more robust. The second to fifth are cylindrical, and sub-equal. The last pair only is slightly chelate, a characteristic found only in the female. The appendages of the abdomen are five in number, the first segment having none. The second pair are foliaceous, the third, fourth and fifth with one small leaf-like branch, the other styliform and very hairy. The sixth pair have the outer and inner branches alike, each with an upper calcareous portion ending in a small spine at the outer edge.

The smaller female specimen agrees with the above, the male also having the same markings on the carapace. It differs in having no chela on the fifth walking leg, and a much slighter second abdominal appendage.

Definite differences between the various previously described species of *Arctus* and this species seem to point to this form being a new species. The markings on the carapace do not seem to agree with any of the " Challenger " species. In the arborescent pattern on the abdomen it agrees with *A. sordidus, orientalis*, and *pygmaeus*. No spine is present on the coxal joint of the fifth pair of legs as in *A. tuberculatus* and in *A. crenatus* Whitelegge, a small form found outside Sydney by the trawling ship " Thetis." I can find no Tasmanian record of any of these forms, and it differs considerably from any of those described from New Zealand.

Section ANOMURA.

Tribe GALATHEIDEA.

Family Galatheidae.

Genus Munida *Leach.*

6. Munida subrugosa *White.*

Galathea subrugosa, White, List Crust. Brit. Mus., 1847, 66 (sine descr.); Cunningham, Trans. Linn. Soc. (Zool.), 27, 1871, 495.

Munida subrugosa, Dana, U.S. Explor. Exped., 13, Crust., Pt. I, 1852, 479, pl. 30, fig. 7; Miers, Zool. " Erebus " and " Terror," Crust., 1874, 3, pl. 3, fig. 2; *idem*, Catal. N.Z. Crust., 1876, 68; Targioni Tozetti, Crost., " Magenta," 1877,

234, pl. 13, fig. 5; Hutton, Trans. N.Z. Inst., 11, 1879, 340; White, var. *australiensis* Henderson, Rep. " Challenger," Anomura, 27, 1888, 124; Thomson, Trans. N.Z. Inst., 31, 1899, 194.

Grimotheca gregarius, Chilton, Trans. N.Z. Inst., 37, 1905, 320.

Munida subrugosa White, Sub-antarctic Islands of N.Z., 2, 1909, 604; Stebbing, Trans. Roy. Soc. Edin., 50, (2), No. 9, 1914, 279.

Macquarie Island, 1 ♂, 1 ♀.

The larger specimen a male, measures 87 mm. from the tip of the rostrum to the end of the telson; the smaller, the female, measures 55 mm. The first maxillipedes measure respectively 40 and 20 mm.

Both specimens appear to be adult forms and in structure agree closely with the descriptions of Henderson. The length of the last maxilliped, in proportion to the total length of the body, and the details which can be seen without removing any of the limbs, are similar. Most of the spinules mentioned on the carapace of var. *australiensis* are present, though the single ones on each hepatic region immediately external to the anterior gastric spine are not present. This seems to be in accord with the variation of spinules in the specimens described by Henderson and Chilton, causing Chilton to regard the variety as not justified.

The chief point of interest is the large size of the two specimens. The female is twice the length of those described by Henderson as taken by the " Challenger," and the same size as the largest of the Chilton specimens from the sub-antarctic islands of New Zealand. The male specimen seems to be the largest yet recorded.

The resemblance of this form to the New Zealand species is of interest in considering the relationships of the fauna of the two countries, and especially that of New Zealand with the adjacent Sub-antarctic Islands.

EXPLANATION OF PLATE IV.

Acanthephyra antarctica n.sp.

Fig. 1. Female, with eggs, lateral view. Natural size.

1a. Union of meros and carpus of fourth walking leg. Enlarged.

1b. Telson with sixth abdominal appendage. Enlarged.
(First, second and third pairs of walking legs missing.)

Arctus mawsoni n. sp.

Fig. 2. Dorsal view of female. Natural size.

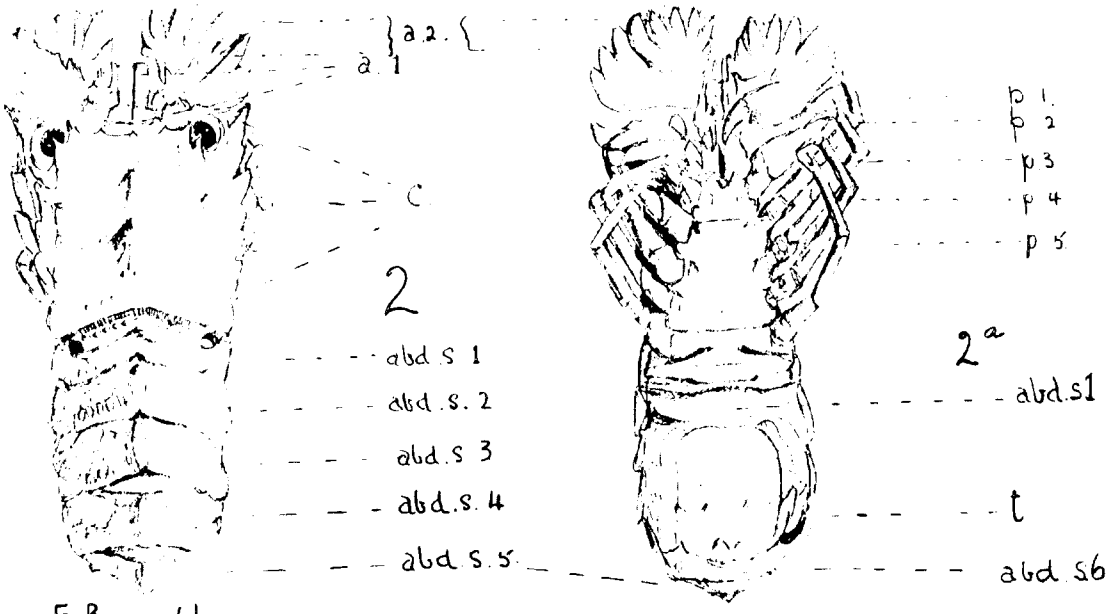
2a. Ventral view of same specimen.

a1, First antenna; a2, second antenna.

abd. s. 1—6, Abdominal somites 1—6; C, carapace; p. 1—5, walking leg 1—5; t, telson. (Outlines drawn by camera lucida.)

Sydney: David Harold Paisley, Government Printer—1938.


1
1a
1b


a 2.
a 1
c
2
abd s 1
abd. s. 2
abd. s 3
abd. s. 4
abd. s. 5
p 1.
p 2
p 3
p 4
p 5
2a
abd.s1
t
abd. s6

F. Bage del.