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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 8.

PYCNOCONIDA

BY
ISABELLA GORDON, D.Sc. Ph.D.,
BRITISH MUSEUM (NAT. HIST.)

WITH EIGHT TEXT FIGURES.

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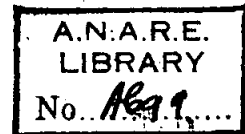
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PYCNOGONIDA

OF THE
AUSTRALASIAN ANTARCTIC EXPEDITION.

By ISABELLA GORDON, D.Sc., Ph.D.
(From the Zoology Department, British Museum (Nat. History).)

(With 8 Text-figures.)

INTRODUCTION.

Although the collection of Pycnogonida obtained by the Australasian Antarctic Expedition is a comparatively small one, it comprises no fewer than forty species from the Antarctic zone, mostly from Commonwealth Bay, King George Land, and four species from Macquarie Island.

The exceedingly common Antarctic species *Nymphon australe* excepted, the genus *Nymphon* is hardly represented; this is in striking contrast to most previous Antarctic collections. In the recent "Discovery II" collection, for example, no fewer than seventeen species of *Nymphon* were represented, forming some two-thirds of the entire collection. In the collections from the Ross Sea area obtained by the "Terra Nova" and "Discovery" Expeditions respectively, eight species of *Nymphon* are included. One would suppose that the fauna would be very uniform throughout the whole Antarctic Zone, where the physical conditions are so uniform, and that the same genera would occur in approximately the same proportions in all collections. Commonwealth Bay, however, would appear to be rather deficient in species of the genus *Nymphon*.

The genus *Colossendeis*, on the other hand, is represented by eleven species, one of which is new; the two "brevitarsal" species are without locality labels but were probably obtained in deep water. The genus *Decolopoda* is not represented. In addition to the six species of *Ammonothea* named below, there is another immature specimen belonging to an undescribed species related to *A. longispina* Gordon (1932, p. 101).

Austrodecus breviceps, from Macquarie Island, is a minute but striking form markedly different from the only other species of the genus—*A. glaciale*, which is mainly Antarctic but has also been recorded from the Magellan district. Of the remaining species from Macquarie Island, *Pycnogonum platylophum* has been previously recorded from the Magellan district, *Tanystylum styligerum* from the Magellan district and Kerguelen, and *T. pfefferi* from the Magellan district, South Georgia and Bouvet Island.

LIST OF SPECIES.

(a) ANTARCTIC ZONE.

Family COLOSSENDEIDAE.

Longitarsal Group—	PAGE.
<i>Colossendeis longirostris</i> n.sp.	9
<i>Colossendeis australis</i> Hodgson	10
<i>Colossendeis drakei</i> Calman	10
<i>Colossendeis frigida</i> Hodgson	11
<i>Colossendeis glacialis</i> Hodgson	11
<i>Colossendeis lilliei</i> Calman	11
<i>Colossendeis rugosa</i> Hodgson	11
<i>Colossendeis scotti</i> Calman	12
<i>Colossendeis wilsoni</i> Calman	12
Brevitarsal Group—	
<i>Colossendeis colossea</i> Wilson	12
<i>Colossendeis macerrima</i> Wilson	12

Family NYMPHONIDAE.

<i>Pentanympyon antarcticum</i> Hodgson	13
<i>Nymphon australe</i> Hodgson	13
<i>Nymphon charcoti</i> Bouvier	13
* <i>Heteronymphon kempi</i> Gordon	14

Family PHOXICHILIDAE (PALLEPIDAE).

<i>Austropallene cristata</i> (Bouvier)	15
<i>Austropallene cornigera</i> (Möbius)	15
<i>Austropallene tibicina</i> Calman	15

Family PHOXICHILIDIIDAE.

<i>Pallenopsis patagonica</i> (Hoek)	15
* <i>Pallenopsis villosa</i> Hodgson	16
<i>Pallenopsis hodgsoni</i> nom.nov.	16
<i>Pallenopsis vanhoffeni</i> Hodgson	17
<i>Pallenopsis spicata</i> Hodgson	19
<i>Phoxichilidium australe</i> Hodgson	19

Family ENDEIDAE.

<i>Endeis australis</i> (Hodgson)	20
--	----

* This is only the second record for the species.

Family AMMOTHEIDAE.

<i>Ammothea australis</i> (Hodgson)	20
<i>Ammothea gibbosa</i> (Möbius)	20
* <i>Ammothea gigantea</i> Gordon	21
<i>Ammothea glacialis</i> (Hodgson)	21
<i>Ammothea minor</i> (Hodgson)	21
<i>Ammothea striata</i> (Möbius)	22
<i>Achelia brucei</i> Calman	22
<i>Achelia intermedia</i> Calman	23
<i>Achelia spicata</i> (Hodgson)	23
<i>Achelia serratipalpis</i> Bouvier	24
<i>Austroraptus polaris</i> Hodgson	24
<i>Austroraptus praecox</i> Calman	24
<i>Austroraptus juvenilis</i> Calman	24
<i>Austrodecus glaciale</i> Hodgson	25

Family PYCNOGONIDAE.

<i>Pycnogonum gaini</i> Bouvier	28
--	----

(b) MACQUARIE ISLAND.

Family AMMOTHEIDAE.

<i>Austrodecus breviceps</i> n.sp.	25
<i>Tanystylum styligerum</i> Miers	26
<i>Tanystylum pfefferi</i> Bouvier	27

Family PYCNOGONIDAE.

<i>Pycnogonum platylophum</i> Loman	28
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FAMILY COLOSSENDEIDAE.

Genus COLOSSENDEIS *Jarzynsky*.

Calman, 1915, p. 9; Gordon, 1932, p. 11.

I. LONGITARSAL GROUP.

When I inserted the species *C. tortipalpis* in the key to the "longitarsal" species of the genus drawn up by Calman (1915, p. 10), I placed it near to *C. scotti* Calman and *C. australis* Hodgson (Gordon, 1932, p. 12). While *C. tortipalpis* resembles both these species in having the tip of the oviger subchelate, it is, on the other hand, closely related to *C. angusta* Sars† and *C. gracilis* Hoek†, especially as regards the manner in which the eighth palpal segment is articulated with the seventh (fig. 1b). Since Calman utilised differences in the palp and not the oviger in his key it would have been better to have

* This is only the second record for the species.

† Regarded as synonyms by Möbius.

inserted *C. tortipalpis* near to *C. angusta*. Now that still another species with this type of palp has been discovered, I find it advisable to reprint the key in a revised form as follows:—

- I. Sixth segment of palp more than three times as long as wide.**
- A. Proboscis distinctly longer than trunk.**
- I. Trunk segmented** *C. articulata* Loman.
- II. Trunk non-segmented.**
- A. Lateral processes in contact.**
1. Seventh segment of palp longer than eighth; eyes absent; tip of oviger not subchelate *C. proboscidea* (Sabine).
2. Seventh segment of palp shorter than eighth; eyes present; tip of oviger subchelate *C. scotti* Calman.
- B. Lateral processes separated.**
1. Eighth segment of palp articulated termino-laterally with seventh in adult specimens.*
- a. Eyes present; tip of oviger subchelate.**
- i. Proboscis not twice as long as trunk and more dilated in middle; second segment of palp at least half as long again as fourth *C. tortipalpis* Gordon.
- ii. Proboscis two and a half times as long as trunk and more slender; second segment of palp scarcely longer than fourth *C. longirostris* n.sp.
- b. Eyes absent or unpigmented; tip of oviger not subchelate** { *C. angusta* Sars.
C. gracilis Hoek.
2. Eighth segment of palp normally articulated with seventh.
- a. Seventh segment of palp equal to eighth.**
- i. Eyes present; tip of oviger subchelate *C. australis* Hodgson.
- ii. Eyes absent; tip of oviger not subchelate... .. { *C. media* Hoek.
C. brevipes Hoek.
3. Seventh segment of palp distinctly shorter than eighth; (tip of oviger not subchelate).
- i. Eyes absent (proboscis dilated distally) *C. orcadense* Hodgson.
- ii. Eyes present.
- α. Legs smooth** { *C. megalonyx* Hoek.
C. frigida Hodgson.
- β. Legs spiny** *C. rugosa* Hodgson.
- B. Proboscis subequal to trunk** *C. scoresbii* Gordon.
- II. Sixth segment of palp usually not more than twice as long as wide (proboscis, at most, hardly longer than trunk; eyes present; tip of oviger not subchelate).**
- A. Lateral processes almost or quite in contact; palp with eight segments...** *C. wilsoni* Calman.
- B. Lateral processes separated; palp with nine segments.**
- I. Femur longer than second tibia.**
- A. Sixth segment of palp longer than seventh, eighth or ninth** *C. glacialis* Hodgson.
(*C. gracilipes* Bouvier).
- B. Sixth segment of palp subequal to seventh, but shorter than either eighth or ninth** *C. drakei* Calman.
- II. Femur not longer than second tibia.**
- A. Lateral processes separated by their own diameter** *C. robusta* Hoek.
- B. Lateral processes separated by less than their own diameter** *C. lilliei* Calman.

* See Meinert's observations as to the differences in form of the palpal segments in immature and fully adult specimens of *C. angust*, (1899, Danish Ingolf Expedition, III, (1), p. 59).

COLOSSENDEIS LONGIROSTRIS *n.sp.* (Fig. 1.)

Material.—Station 5, 6th January, 1914, 64° 34' S., 127° 8' E., 1,700 fathoms—1♀ (holotype).

Description—Trunk.—The lateral processes are separated by intervals varying from $\frac{1}{3}$ to $\frac{2}{3}$ of their diameter. The greatest width, across first or second lateral processes, is rather more than half the length of the trunk. The ocular tubercle is slender and sharply conical, the eyes are rather small and inconspicuous, the anterior larger than the posterior pair.

The *proboscis*, which is detached from the trunk, is two and a half times as long as the latter, slender and slightly dilated anterior to the proximal third (fig. 1a); the terminal is just a trifle less than the basal width.

The *abdomen* is short and clavate, extending almost to the distal end of the first coxa (fig. 1a).

The *palp* is slender and considerably longer than the proboscis; the second and fourth segments are subequal; the sixth segment is rather longer and more slender than the fifth and at least seven times as long as wide distally. The eighth segment is about half as long as the ninth and articulated laterally with the very short seventh as in *C. tortipalpis* Gordon (fig. 1b).

The *oviger* has the fourth and sixth segments subequal; the spines on the four terminal segments are arranged roughly in four longitudinal series and the two spines opposed to the terminal claw are considerably enlarged (fig. 1c).

The *third leg* is nearly eight times as long as the trunk. There are numerous minute papillae on all the segments (as also on the trunk and proboscis), in addition there are some 4–6 longitudinal series of small setules on the femur and on each tibia.

Measurements.

	<i>millimètres.</i>
Length of proboscis	26.8
Greatest diameter of proboscis	2.3
Length of trunk	10.4
Width, across first lateral processes	6.0
Length of abdomen	3.0
Third leg—	
Coxae	5.5
Femur	22.8
First tibia	20.5
Second tibia	16.0
Tarsus	6.0
Propodus	5.0
Claw	5.3



Palp—

Second segment	...	...	...	...	...	...	11.2
Fourth segment	...	...	...	...	...	...	10.2
Fifth-seventh segments	...	...	...	...	...	...	7.7

Remarks.—This species is closely related to *C. tortipalpis* Gordon (1932, p. 12, figs. 2*b-e*, 3*b*, *d* and 4*a*) but it is a more slender form from much deeper water. The proboscis and the palp are longer relatively to the trunk, and more slender; the second palpal segment is scarcely longer than, instead of half as long again as, the fourth. The spines on the ventral surface near the distal articulation of the second tibia and the tarsus are much smaller than in *C. tortipalpis*. The terminal segment of the oviger is shorter and thicker and the spine opposed to the claw is not so markedly larger than those immediately preceding it (cf. fig. 1*c* with Gordon, 1932, p. 15, fig. 4*a*).

Although the specimen was dredged from a depth of 1,700 fathoms the eyes are distinct, though small; *C. angusta* Sars* from 417–658 fathoms and *C. gracilis* Hoek† from 1,375 and 1,600 fathoms are both blind forms.

COLOSSENDEIS AUSTRALIS *Hodgson.*

Gordon, 1932, p. 15, figs. 2*a*, 3*a*, 3*c* and 4*b*.

Material.—

- (*a*) Commonwealth Bay, off Cape Denison; 3 and 4 September, 1912, 25 fathoms—7 ♀♀, 6 ♂♂, 1 juv. Most of the specimens have encrusting Polyzoa, and there is an occasional Serpulid.
- (*b*) Commonwealth Bay, 6 miles west of Cape Denison, 22 December, 1913, 350–400 fathoms: 1 ♀, 1 ♂ with encrusting Polyzoa.
- (*c*) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ? ♀ (of large size but without genital pores), 1 ♂ with encrusting Polyzoa, 1 juv. with cluster of ? Hydrozoa on the claws of three walking legs. This growth is badly preserved and incomplete; see also *Ammonothea gibbosa* (p. 21).

COLOSSENDEIS DRAKEI *Calman.*

Calman, 1915, p. 22, fig. 3; Gordon, 1932, p. 22, figs. 4*c*, 7*e*, 7*f* and 8*b*.

Material.—No data as to locality: 1 ♀.

* Sars, 1891, Den. Norske Nordhavs-Expn., 1876–78, XX, p. 143.

† Hoek, 1881, p. 70.

COLOSSENDEIS FRIGIDA *Hodgson*.

Gordon, 1932, p. 16; figs. 5a, b, 6a, d, 7c, d.

Material.—

- (a) Commonwealth Bay, off Cape Denison; 3 September, 1912; 25 fathoms: 1 ♂.
- (b) Commonwealth Bay, 6 miles west of Cape Denison, 22 December, 1913; 350–400 fathoms: 2 ♂♂.
- (c) Station 3, 31 December, 1913, 66° 32' S., 141° 37' E., 157 fathoms: 1 ♀ (genital pores not open), with encrusting Polyzoa and two small specimens of *Scalpellum*: 3 ♂♂, one with a few encrusting Polyzoa.
- (d) Station 8, 27 January, 1914, 66° 8½' S., 94° 21' E., 120 fathoms: 1 small ♀ (genital pores visible but probably not open).
- (e) No data as to locality: 1 ♂ and 1 large cast of a ♂.

COLOSSENDEIS GLACIALIS *Hodgson*.

Hodgson, 1927, p. 312, fig. 1; Gordon, 1932, p. 21, figs. 4d, 7g and 8a.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 25 fathoms: 2 ♀♀, 3 ♂♂.
- (b) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 small ? ♀ probably belongs to this species; segments 8 and 9 of left palp not distinctly separated, segment 9 of right palp very short and narrow.
- (c) Station 10, 29 January, 1914, 65° 5' S., 96° 0' E., 340 fathoms: 1 juv. (badly damaged).

COLOSSENDEIS LILLIEI *Calman*.

Calman, 1915, p. 25; fig. 4.

Material.—Station 10, 29 January, 1914, 65° 5' S., 96° 0' E., 340 fathoms: 5 ♂♂, two with encrusting Polyzoa.

COLOSSENDEIS RUGOSA *Hodgson*.

Calman, 1915, p. 16.

Material.—

- (a) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ♂.
- (b) Station 11, 31 January, 1914, 64° 40' S., 97° 22' E., 358 fathoms: 1 ♂.

Remarks.—The specimen from Station 11 agrees with the type of *C. rugosa* as regards the spinose character of the legs. The claw of the second walking leg, however, is longer than in the holotype (claw : propodus :: 0.97 : 1, instead of 0.88 : 1) and is thus

as long as in *C. megalonyx* Hoek. The terminal claw of the oviger is like that of *C. rugosa*, i.e., more slender distally and without the thin flattened flange (cf. Gordon, 1932, p. 17, fig. 5a and b). In the specimen from Station 2 the claw on the second (and the third) leg is similar to that of the holotype.

COLOSSENDEIS SCOTTI *Calman.*

Calman, 1915, p. 11, fig. 1.

Material.—Commonwealth Bay, off Cape Denison, 3 September, 1912, 25 fathoms: 1 ♀, 3 ♂♂ with encrusting Polyzoa and, on one ♂, a small *Scalpellum*. In two of the ♂♂ the claws on the ovigers are very much worn.

COLOSSENDEIS WILSONI *Calman.*

Calman, 1915, p. 18, fig. 2; Gordon, 1932, p. 21.

Material.—Station 3, 31 December, 1913, 66° 32' S., 141° 37' E., 157 fathoms, 1 ♀ with a small *Scalpellum*.

Remarks.—This specimen agrees with the holotype of *C. wilsoni* except in some minor respects: (1) The lateral processes are separated by intervals varying from $\frac{1}{5}$ to $\frac{1}{3}$ of their diameter; (2) The proboscis is rather narrower proximally than in Calman's figure (1915, p. 19, fig. 2B).

II. BREVITARSAL GROUP.

COLOSSENDEIS COLOSSEA *Wilson.*

C. gigas Hoek, 1881, p. 61; pl. 8, figs. 1 and 2; pl. 10, figs. 1-5.

C. colossea Bouvier, 1917, p. 13; pl. 1, fig. 2; pl. 2, fig. 1 (*syn. et bibl.*).

C. colossea Flynn, 1928, p. 7.

Material.—No data as to locality: 2 ♂♂; two other very imperfect ♂♂, probably also belong to this species but all the legs are incomplete.

COLOSSENDEIS MACERRIMA *Wilson.*

C. leptorhynchus Hoek, 1881, p. 64, pl. 8, figs. 3-7; Hodgson, 1908, p. 186.

C. macerrima Calman, 1923, Rec. Ind. Mus. XXV, pt. III, p. 267 (*ubi. synonym.*)

Material.—No data as to locality: 1 ♂, 1 juv.

Remarks.—The male specimen is very soft and all the legs have collapsed; it is probably a cast but no split in the trunk and proboscis has been detected. It agrees with the type specimens with the exception of the ovigers which are undergoing regeneration.

FAMILY NYMPHONIDAE.

Genus PENTANYMPHON *Hodgson*.PENTANYMPHON ANTARCTICUM *Hodgson*.

Gordon, 1932, p. 24.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms, 1 ♂.
- (b) Station 7, 27 January, 1914, 65° 46' S., 93° 13' E., 60 fathoms: 1 ♀, 1 ♂ (the former with very short neck).

Genus NYMPHON *Fabricius*.

Gordon, 1932, p. 26.

NYMPHON AUSTRALE *Hodgson*.

Chaetonymphon australe Hodgson, 1927, p. 323 (in key).

Nymphon australe Gordon, 1932, p. 59, figs. 25*d* and 26*b*.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: about 50 specimens, including ovigerous males; several with encrusting Polyzoa.
- (b) Commonwealth Bay, 14 December, 1913, 45–50 fathoms: 1 juv.
- (c) Commonwealth Bay, 21 December, 1913, 50–56 fathoms: 5 specimens.
- (d) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ♂.
- (e) Station 4, 2 January, 1914, 65° 50' S., 137° 30' E., 300 fathoms: 1 ♂, 1 juv.
- (f) Station 7, 21 January, 1914, 65° 46' S., 92° 13' E., 60 fathoms: many specimens, including ovigerous males.
- (g) No data as to locality: 1 ♀.

NYMPHON CHARCOTI *Bouvier*.

Hodgson, 1927, p. 317 (in key); Gordon, 1932, p. 51, fig. 10*b*.

Material.—No data as to locality: 2 soft incomplete specimens, not quite adult, probably belong to this species.

Genus HETERONYMPHON *Gordon*.

Gordon, 1932, p. 79.

HETERONYMPHON KEMPI *Gordon*. (Fig. 2).

Gordon, 1932, p. 80.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ovig. ♂.

Remarks.—This specimen agrees closely with the "Discovery" specimens from South Georgia; the only obvious difference is in the relative proportions of the tarsus and propodus. In the type specimens the tarsus is rather more than half as long as the propodus; in the specimen from Commonwealth Bay the tarsus is considerably longer (cf. fig. 2a with fig. 38a in Gordon, 1932, p. 81). The relative proportions of the three terminal segments of the leg (principal claw included) vary considerably in certain species of Pycnogonida and the material is not sufficient to justify the separation of the Commonwealth Bay from the South Georgian form.

The relative lengths of the palpal segments are almost identical with those found in the type specimens (fig. 2b) and the oviger is very similar, although the fifth segment is not quite so slender in the proximal half (cf. fig. 2c with fig. 39c in Gordon, 1932, p. 82).

FAMILY PHOXICHILIDAE (PALLENIDAE).

Genus AUSTROPALLENE *Hodgson*.

KEY TO THE DETERMINATION OF THE ANTARCTIC AND SUBANTARCTIC SPECIES OF THE GENUS.

- I. A high mid-dorsal spur on each of the three anterior trunk somites; dermal papillae on the three main segments of the walking legs curved, spinose, and nearly equal to the diameter of the limbs; proboscis tapering in distal half and subequal to the sum of the three anterior trunk somites [lateral processes almost in contact; chela subequal to scape (7 : 6.5) which is about twice as long as wide; abdomen longer than fourth lateral process] *A. cristata* (Bouvier).
- II. No mid-dorsal spurs on trunk; dermal papillae low, not exceeding one-fourth diameter of the legs, or obsolete in adults; proboscis not exceeding the sum of the two anterior trunk somites.
- A. No distal spurs on first coxa of walking leg; abdomen longer than fourth lateral process; chela massive, longer than scape which is usually not twice as long as wide [proboscis tapering in distal third] *A. cornigera* (Möbius).
- B. A pair of distal spurs on first coxa of walking leg; abdomen much shorter than fourth lateral process; chela rather slender and shorter than scape which is 3-4 times as long as wide.
1. Proboscis long, slender and bent downwards in distal half; immovable extending well beyond movable finger of chela and bearing two blunt teeth on inner margin near the acute apex *A. tibicina* Calman.
2. Proboscis slightly contracted in middle and abruptly narrowed, but not bent downwards, in distal third; immovable subequal to movable finger of chela and blunt at apex with inner margin entire *A. brachyura* Bouvier.

AUSTROPALLENE CRISTATA (*Bouvier*).

Hodgson, 1927, p. 331; Gordon, 1932, p. 86.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 2 ♀♀.

Distribution.—Previously recorded from "chenal Peltier, entre l'îlot Goetschy et l'île Doumer; 92 metres; près le la Terre Alexandre; 250 metres"; South Georgia and "Gauss" winter quarters.

AUSTROPALLENE CORNIGERA (*Möbius*).

Hodgson, 1927, p. 329, fig. 7; Gordon, 1932, p. 85, figs. 42 and 43.

Material.—

(a) Commonwealth Bay, 21 December, 1913, 55–60 fathoms: 1 ♀, 1 juv.

(b) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 juv.

(c) Station 8, 27 January, 1924, 66° 8½' S., 94° 21' E., 120 fathoms: 1 ♂ (some remains of egg cases on ovigers, presumably the larvae had recently left the parent).

Remarks.—In addition to the variation in the relative length of the legs mentioned by Calman (1915, p. 38), some specimens are more compactly built than others the lateral processes being sometimes almost in contact, sometimes separated by about half their own diameter. The dermal papillae are, as a rule, quite distinct on the three long segments of the legs in immature specimens but do not exceed one fourth of the diameter of the limbs. Each papilla bears a short seta (see also Hodgson, pl. 1, fig. 2). In adults they are much lower and, occasionally, only the minute setae remain.

AUSTROPALLENE TIBICINA *Calman*.

Calman, 1915, p. 39, figs. 7 and 8.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ♀, 1 ovig. ♂—on Hydroid *Staurotheca* sp.

FAMILY PHOXICHILIDIIDAE.

Genus PALLENOPSIS *Wilson*.PALLENOPSIS PATAGONICA (*Hoek*).

Gordon, 1932, p. 88, fig. 44.

Material.—

(a) Station 2 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ♀ with a small sea anemone on one leg.

(b) Station 7, 21 January, 1914, 65° 46' S., 92° 13' E., 60 fathoms: 1 ♂ and 1 specimen of rather large size but without genital pores.

(c) No data as to locality: 1 ♀ with encrusting Polyzoa.

PALLENOPHIS VILLOSA Hodgson. (Figs. 3c, 4b, 5a).

Hodgson, 1907, p. 13; pl. 2, fig. 1.

Material.—Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms :
1 ♀.

Remarks.—This specimen agrees well with the holotype, which is also a female, in the British Museum Collection. This species can at once be distinguished from the three other hairy Antarctic forms, *P. pilosa*, *P. hodgsoni* (= *P. pilosa* of Hodgson) and *P. vanhoeffeni*, by the long, slender curved fingers of the chela, which cross over distally leaving a wide gap proximally (Hodgson, 1907, pl. 2, fig. 1a). In each of the other species the fingers are shorter than the palm, stouter and their inner edges are in contact throughout when they are closed.

These four species also show differences in the microscopic structure of the hairs that clothe the legs (fig. 3). In *P. villosa* each hair is rather sparsely plumose, the lateral branches exceeding the basal diameter of the main hair (fig. 3c). In *P. pilosa* (Hoek) the long hairs are simple (fig. 3d); in *P. hodgsoni* they are each beset with minute spinules (fig. 3a); in *P. vanhoeffeni* the hairs are relatively short and stout and each is rather densely plumose, the fine lateral hairs not exceeding the basal diameter of the main hair. In adult specimens of *P. vanhoeffeni* the fine lateral hairs are absent (more or less) from the convex side (fig. 3b).

The syntypes (♀) of *P. pilosa* (Hoek) in the "Challenger" Collection can easily be distinguished from each of the other three species by the very slender proximal half of the second coxa (fig. 4c; cf. fig. 4a, b and d).

The oviger of *P. pilosa* is ten-jointed and the distal segments are more hairy than in the other three species (fig. 5a–d). In the genus *Pallenopsis* the seventh and eighth segments of the female oviger are frequently coalesced so that only nine segments may be present (fig. 5b, c and d):

Distribution.—This appears to be only the second record for the species; the holotype was taken off Coulman Island in 100 fathoms.

PALLENOPHIS HODGSONI *nom. nov.* (Figs. 3a, 4d, 5d).

P. pilosa Hodgson, 1907, p. 15; pl. 2, fig. 2.

P. pilosa Bouvier, 1911, p. 1139; 1913, p. 107, figs. 60 and 61.

P. pilosa Calman, 1915, p. 42.

P. pilosa Gordon, 1932, p. 87.

nec *Phoxichilidium pilosa* Hoek, 1881, p. 90, pl. 13, figs. 10–13.

Material.—Station 10, 29 January, 1914, 65° 5' S., 96° 0' E., 340 fathoms : 1 ♀, 1 ♂.

Remarks.—Calman (1915, p. 43) has pointed out that specimens from the Ross Sea region differ in certain respects from the syntypes of *Pallenopsis pilosa* (Hoek).

In addition to the differences mentioned by Calman, the second coxae of the legs are much more slender proximally in the syntypes (♀) of *P. pilosa* than in females from either the eastern or western side of the Antarctic (cf. fig. 4c and d). The hairs on the legs differ in their microscopic structure (fig. 3a and d; see also p. 16); in "*P. pilosa*" determined by Hodgson the hairs are also more numerous, and those on the coxae are much shorter than in the syntypes of *P. pilosa* (fig. 4c and d).

The syntypes of *P. pilosa* are recorded from deep water (1,600 and 1,950 fathoms) and from more northern latitudes (46° 16' and 53° 55' S. respectively). The more southern form has been dredged in 340 fathoms or less. I have thought it advisable, in view of the differences referred to above and on p. 16, to regard the latter as a distinct species which I propose to name *P. hodgsoni*.

PALLENOPSIS VANHÖFFENI Hodgson. (Figs. 3b, 4a, 5c, e, 6c, d).

Calman, 1915, p. 43; Hodgson, 1927, p. 336, fig. 9.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 juv. with encrusting Polyzoa.
- (b) Station 7, 21 January, 1914, 65° 46' S., 92° 13' E., 60 fathoms: 6 ♀♀, 3 ♂♂, 1 juv. —with encrusting Polyzoa, and pieces of sea weed; on one ♀ there is a small *Scalpellum*.
- (c) Station 8, 27 January, 1914, 66° 8½' S., 94° 21' E., 120 fathoms: 5 juv. with *P. spicata*.

Description.—The *trunk* is compact, with the segmentation, as a rule, rather indistinct, occasionally absent dorsally in small specimens. The lateral processes are almost in contact proximally, diverging a little distally; each bears 2–6 short stout setae, each set on a conical papilla, near the distal articulation on the dorsal surface. Where two or three setae are in close proximity, the basal papillae may coalesce to form a blunt tubercle.

The first or cephalic segment is rather longer than the sum of the remaining segments and, in immature specimens, is as represented in fig. 6c; in most adults there is only a small stout seta on either side of the cephalon, some distance from the ocular tubercle, which is higher than wide, ending in a narrow cone above the eyes.

The proboscis is nearly half as long as the trunk (measured to the anterior end of the rudimentary palp), and sub-cylindrical.

The abdomen is elevated at an angle of about 45°, and is, as a rule, rather shorter than, sometimes equal to, the cephalic segment. It is slightly expanded in the distal half or third and bears two dorsal rows of about 4–8 setae on the enlarged portion.

The *chelophore* has the two-jointed scape curved in the usual manner so that the chela lies just in front of the mouth. There is a dorsal series of 6–8 setae on the proximal segment which ends in a conical tubercle beset with 3–4 setae; there are in addition 3–4

setae on the distal segment of the scape. The chela is shorter than the distal segment of the scape; the fingers are much shorter than the palm, and their inner margins are in contact throughout when they are closed. There is a fringe of short setae along the inner ventral margin of the palm, near the base of the fixed finger.

The *palp* is represented by a bud, usually, though not always, higher than wide, in contact with the papilla at the base of the oviger.

The *oviger* of the male has ten segments as represented in fig. 5e; that of the female is much shorter and is either nine- or ten-jointed according to whether a suture is absent or present between segments 7 and 8 (fig. 5c). There is nothing unusual in these specimens to bear out Calman's (1915, p. 46) suggestion that the terminal segments may be deciduous in the adult male.

The third walking leg.—The coxae of the female are as represented in fig. 4a. The setae are, for the most part, restricted to the three longest segments, and are arranged in 3-4 rows as shown in Hodgson's figure (1927, p. 336, fig. 9). These long setae do not exceed the maximum diameter of the femur, and each is beset with numerous fine lateral hairs as represented in fig. 3b. In young specimens these hairs are present on both sides, in adults they tend to be restricted to the concave side.

The second tibia is the longest segment (see measurements). In the male there is a prominent femoral gland tubercle near the middle of the ventral margin. The terminal segments are represented in fig. 6d.

Measurements in mm.

	♂	♀	♀
Length of proboscis*	4.4	4.6	4.6
Diameter of proboscis*	1.6	1.7	1.8
Length of trunk	8.6	9.0	9.2
Width across second lateral processes	7.8	7.7	7.4
Length of cephalic segment	4.7	5.0	4.8
Length of abdomen	3.9	4.2	4.0
Length of scape	5.2	5.8	5.7
Length of chela	2.2	2.4	2.3
Third leg—			
First coxa	2.48	2.5	2.57
Second coxa	5.83	5.5	4.68
Third coxa	1.6	2.0	1.6
Femur	11.4	13.4	13.3
First tibia	10.9	12.6	12.3
Second tibia	14.3	16.5	16.6
Tarsus	0.6	0.6	0.6
Propodus	3.3	3.0	3.1
Claw	2.0	2.0	1.9
Auxiliaries	0.9	0.8	0.8

* Measured laterally.

Remarks.—This species differs from the three other hairy species of the genus, *P. villosa*, *P. pilosa* and *P. hodgsoni* in the following respects. The segmentation of the trunk is less distinct, sometimes almost obsolete; the hairs on the legs are mostly restricted to the three long segments, arranged in three distinct longitudinal series, are shorter, more robust and beset with numerous short fine lateral hairs as represented in fig. 3*b*. The spines on the second and third segments of the female oviger are also characteristic (fig. 5*c*). See also p. 16.

PALLENOPSIS SPICATA Hodgson. (Fig. 6*a, b*).

Calman, 1916, p. 44, fig. 9; Hodgson, 1927, p. 338, fig. 10; Gordon, 1932, p. 90.

Material.—

(*a*) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ♀, 2 ovig. ♂♂, with encrusting Polyzoa.

(*b*) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288-300 fathoms: 1 ♀.

Remarks.—The specimens from Commonwealth Bay (*a*) have the spinules on the dorsal surface of the first tibia set each on a high tubercle which is quite distinct to the unaided eye. This seems to be characteristic of smaller specimens such as that obtained by the "Discovery" (Gordon, 1932, p. 90). In larger specimens, such as the female from Station 2, and the male from McMurdo Sound (Calman, 1915, p. 44) these tubercles are far less prominent.

The female oviger has only four segments, in addition to the papilla to which it is attached, as represented in fig. 6*b*. Hodgson (1927, p. 339) states that the specimen in the "Gauss" collection is a female, but his figure and his description of the oviger agree with the male. The coxae of the walking legs (fig. 6*a*) are very similar to those of the male, with slightly lower distal spurs.

Genus PHOXICHILIDIUM Milne-Edwards.

PHOXICHILIDIUM AUSTRALE Hodgson.

Hodgson, 1927, p. 309 (in list of species); p. 340, fig. 11; Gordon, 1932, p. 92.

Material.—

(*a*) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 4 ♀♀, 2 ovig. ♂♂.

(*b*) Commonwealth Bay, 21 December, 1913, 55-60 fathoms: 1 ♀, 1 ovig. ♂.

(*c*) Station 8, 27 January, 1914, 65° 46' S., 92° 13' E., 120 fathoms: 1 ♀ with encrusting Polyzoa.

(*d*) Derwent, Tasmania, 24 July, 1918, 8 fathoms: amongst scallops, 1 juv.

FAMILY ENDEIDAE.

*Genus ENDEIS Philippi.*ENDEIS AUSTRALIS (*Hodgson*).

Gordon, 1932, p. 93.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms : 3 ♀♀ with encrusting Polyzoa.
- (b) No data as to locality : 2 ♀♀, one with Polyzoa on the proboscis.

FAMILY AMMOTHEIDAE.

Genus AMMOTHEA Leach.

Hodgson, 1927, p. 341 ; Gordon, 1932, pp. 94–96 (key to Antarctic and Subantarctic species).

AMMOTHEA AUSTRALIS (*Hodgson*).*Ammothea australis* Calman, 1915, p. 53.*Ammothea (Leonymphon) australe* Loman, 1923, p. 23.*Material.*—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms : 10 ♀♀, 4 ♂♂ (one ovigerous); several specimens with encrusting Polyzoa, one with Serpulid tubes.
- (b) Commonwealth Bay, 14 December, 1913, 45–50 fathoms : 2 ♀♀, 2 ovig. ♂♂, 1 juv.; two specimens with encrusting Polyzoa.
- (c) Commonwealth Bay, 21 December, 1913, 55–60 fathoms, 1 ovig. ♂.

Remarks.—The young specimen has a pair of rather long slender cephalic spurs and the two spurs on each lateral process are considerably more prominent than in adults, where they are reduced to blunt tubercles as a rule. The chelophores, with their perfectly formed chelae, scarcely extend to the distal articulation of the second palpal segment.

AMMOTHEA GIBBOSA (*Mobius*).Calman, 1915, p. 51 (*ubi bibl. et synonym.*).*Material.*—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms : 1 ♀, 2 juv. (with well developed chelae less than half as long as proboscis).

(b) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms; 1 ovig., ♂, 1 juv.

(c) Station 7, 21 January, 1914, 65° 46' S., 92° 13' E., 60 fathoms: 1 juv.

Remarks.—In having a rather long, obliquely directed abdomen, rather long slender terminal palpal segments and a relatively shorter propodus, these specimens agree with *A. gibbosa* rather than with *A. carolinensis* Leach.

There are tufts of ? Hydrozoa on the propodus and claw of three of the walking legs as in *Colossendeis australis* (p. 10).

AMMOTHEA GIGANTEA *Gordon*.

Gordon, 1932, p. 97, figs. 46 and 47a.

Material.—Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ♀, 1 ♂.

Remarks.—There can be no doubt of the identity of these large specimens with *A. gigantea* from the South Sandwich Islands. In the male the femur is subequal to, instead of appreciably longer than, the second tibia. This species may prove to have a circumpolar distribution.

AMMOTHEA GLACIALIS (*Hodgson*).

Calman, 1915, p. 50; Hodgson, 1927, p. 342.

Material.—

(a) Station 7, 21 January, 1914, 65° 46' S., 92° 13' E., 60 fathoms: 1 ♀, 1 ♂, 3 juv.

The male is overgrown with Polyzoa and Sponge; one young specimen bears a small *Scalpellum* and Polyzoa.

(c) Station 8, 27 January, 1914, 66° 8½' S., 94° 21' E., 120 fathoms: 4 juv.

(e) No data as to locality: 1 ♀.

AMMOTHEA MINOR (*Hodgson*).

Hodgson, 1927, p. 342 (in key); Gordon, 1932, p. 103.

Material.—

(a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 69° S., 142° 26' E., 25 fathoms: 1 juv.

(b) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ♀, 1 ♂, 6 juv. Some of the specimens have encrusting Polyzoa and Serpulid tubes.

(c) Commonwealth Bay, 21 December, 1913, 55–60 fathoms: 1 ovig. ♂.

Remarks.—In the smallest specimens the anterior cephalic tubercles, as well as those on the lateral processes, are more prominent than in adults, and approach those found in species of the genus *Achelia*. The tubercles on the first coxae of the legs are, on the other hand, less pronounced. The mid-dorsal projections on the body ridges are sharply conical as also is the ocular tubercle above the eyes.

AMMOTHEA STRIATA (*Mobius*).

Gordon, 1932, p. 96, fig. 47b.

Material.—

(a) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288–300 fathoms: 1 ♂.

(b) No data as to locality: 1 ♀.

Genus ACHELIA *Hodge*.

Hodgson, 1927, p. 344, Key to Antarctic Species; Gordon, 1932, p. 110.

The following tables may serve as a preliminary guide to the rapid determination of material of the genus *Achelia*, in conjunction with the key to seven of the species given by Hodgson (1927, p. 344).

Segmentation of trunk distinct—	Segmentation of trunk indistinct or absent—
<i>A. spicata</i> (2)*	<i>A. intermedia</i>
<i>A. communis</i> (2)	<i>A. brucei</i>
<i>A. serratipalpis</i> (3)	<i>A. parvula</i>
<i>A. hoekii</i> (3)	<i>A. wilsoni</i>
<i>A. megacephala</i> (3).	
Auxiliaries less than half of principal claw—	Auxiliaries at least half of principal claw—
<i>A. spicata</i>	<i>A. communis</i>
<i>A. intermedia</i>	<i>A. brucei</i>
<i>A. hoeki</i>	<i>A. serratipalpis</i>
	<i>A. parvula</i>
	<i>A. wilsoni</i>
	<i>A. megacephala.</i>

ACHELIA BRUCEI *Calman*.

Calman, 1915, p. 61, fig. 16; Hodgson, 1927, p. 345 (in key); Gordon, 1932, p. 113.

Material.—

(a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 25 fathoms:
5 ♀♀, 2 ♂♂, (one ovigerous).

*The numbers in brackets represent the number of sutures present.

- (b) Boat Harbour, Commonwealth Bay, 1 June, 1912, 4 fathoms : Several specimens with most of the appendages detached ; one has the body almost entirely covered with a growth of Polyzoa. NOTE.—“ Colour white, from amongst branches of red and brown sea weed.”
- (c) Boat Harbour, Commonwealth Bay, 1913, 3 fathoms : 1 ♀, 1 ovig. ♂ (collected by Dr. McLean).
- (d) Commonwealth Bay, 14 December, 1913, 45–50 fathoms : 1 ♂, 1 ovig. ♂.

Remarks.—The antero-lateral tubercles are sometimes pronounced, sometimes very low or wanting, in specimens of both sexes. There are occasionally faint indications of the two anterior sutures on the dorsal surface of the trunk.

ACHELIA INTERMEDIA *Calman*.

Calman, 1915, p. 60, fig. 15 ; Hodgson, 1927, p. 345 (in key) ; Gordon, 1932, p. 112, fig. 61.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms : 7 ♀♀, 8 ♂♂ (two ovigerous).
- (a¹) Commonwealth Bay, 3 September, 1912 (from Briggs) : 2 ♂♂ (one ovigerous), 1 juv. on Hydroid, *Staurotheca* sp.
- (b) Commonwealth Bay, 14 December, 1913, 45–50 fathoms, 1 ♀, 4 ♂♂ (one larvigerous).
- (c) Commonwealth Bay, 21 December, 1913, 55–60 fathoms : 2 ♀♀, 6 ♂♂ (3 ovigerous), 1 juv. ; several specimens have encrusting Polyzoa. NOTE.—“ Colour brown.”
- (d) No data as to locality : 1 ♂, 1 juv.

Remarks.—The sutures are often indicated between the first two or three segments but the specimens are referred to this species as the chelophore is always less than half of the proboscis. It is not always easy to distinguish between *A. spicata* and *A. intermedia* and the same applies to *A. communis* and *A. brucei* (Calman, 1915, p. 57).

ACHELIA SPICATA (*Hodgson*).

Calman, 1915, p. 57, figs. 13 and 14 ; Hodgson, 1927, p. 346, fig. 13.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 25 fathoms : 1 ♀, 1 ♂.

ACHELIA SERRATIPALPIS *Bouvier.*

Hodgson, 1927, p. 344 (in key); Gordon, 1932, p. 113.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 25 fathoms: 5 juv. (one with the ocular tubercle overgrown with Polyzoa).

Remarks.—These specimens almost certainly represent the young stages of this species because, while the auxiliary claws are shorter than in the adult, only the posterior spur is present on each first coxa and the palp shows decided indications of the serrations near the distal end of the ventral margin. The chelophores, though chelate, are much shorter than in *A. spicata*, the only other species to which they could belong. The segmentation of the trunk is rather indistinct and there is a very high cone on the ocular tubercle.

Genus AUSTRORAPTUS *Hodgson.*

Gordon, 1932, p. 114.

AUSTRORAPTUS POLARIS *Hodgson.*

Hodgson, 1927, p. 350, fig. 15; Gordon, 1932, p. 114.

Material.—Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ovig. ♂.

AUSTRORAPTUS PRAECOX *Calman.*

Gordon, 1932, p. 114.

Material.—

(a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 4 ♀♀, 1 ovig. ♂, with encrusting Polyzoa.

(b) Station 7; 21 January, 1914, 65° 46' S., 92° 21' E., 60 fathoms: 1 ♂.

AUSTRORAPTUS JUVENILIS *Calman.*

Gordon, 1932, p. 114.

Material.—

(a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 3 ♀♀.

(b) Commonwealth Bay, 21 December, 1913, 55–60 fathoms: 1 juv.

Genus AUSTRODECUS *Hodgson*.AUSTRODECUS GLACIALE *Hodgson*.

Gordon, 1923, p. 115; figs. 63 and 64.

Material.—

- (a) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 25 fathoms, 1 ♀, 2 ♂.
- (b) St. 3, 157 fms. 31 December, 1913, 3 ♂ (two with Nematodes coiled inside mucus.).

Remarks.—These specimens agree with the holotype, and the "Terra Nova" specimens, not with any of the "Discovery" material from South Georgia (Gordon, 1932, p. 117, key). In the paper just referred to there is an error in the legend to fig. 63a, p. 116; this should read "oviger" instead of "palp."

AUSTRODECUS BREVICEPS *n.sp.* (Figs. 7 and 8).*Material*.—

- (a) Macquarie Island, off rocks below low water mark, 1 ♀ (holotype, $l = 2.04$ mm. including abdomen).
- (b) Garden Bay, Macquarie Island, off rocks below low water mark, 27 November, 1912, H. Hamilton, 1 ♀, 1 ♂.
- (c) Lusitania Bay, Macquarie Island, off rocks below low water mark, 1 January, 1913, H. Hamilton: 3 ♀♀, 2 ♂♂.

Description of holotype.—The *trunk* is compact, with distinct segmentation. The cephalic segment, ocular tubercle included, is subequal to the sum of the three posterior segments. On each somite are three high, sharply conical spurs, one in the middle line just in front of the suture, and one on each lateral process (fig. 7).

The *ocular tubercle* is directed obliquely forward, is bluntly truncated anteriorly, and almost as wide as high. All four eyes are available in dorsal aspect, the anterior pair being rather larger than the posterior.

The *proboscis* is movably articulated with the trunk; the narrow distal part is curved downwards and has the numerous annulations characteristic of this genus (fig. 7).

The *abdomen* is short, reaching to the middle of the second coxa.

The *palp* has six segments, of which the second is by far the longest. There are three spines on the inner margin of the dorsal surface of the fourth segment (fig. 8a) and the terminal articulates laterally with the fifth segment, so that the apex appears to the bifid (fig. 8a, a^1).

The minute *oviger* has seven segments; the basal one may correspond to the papilla in e.g. *Pallenopsis* (fig. 8b).

The first pair of *walking legs* is the longest; there are two conical spurs on the first coxa, the anterior one by far the larger. On the inner (anterior) surface of the second coxa, near the ventral margin, is a conspicuous genital opening (fig. 8*d*). The succeeding pairs of legs are rather shorter and thinner, the third is represented in fig. 8*e*. I can find no trace of genital openings on the 2nd-4th pairs.

The entire surface of the body and appendages (the distal half of the proboscis excepted) is covered with distinct dermal papillae.

Male.—The male is very similar to the female, but the oviger is relatively much more robust and rather larger (cf. fig. 8*b* and *c*). There appears to be a minute genital pore on the ventral surface of the second coxa of the last leg, near the distal margin, in one of the specimens; in the other two it is not quite so distinct. (There is no apparent femoral gland tubercle, such as characterises the male of *A. glaciale*). The three males are 1.52 mm. or less in length, abdomen included.

Remarks.—Although of very small size, this species presents a striking appearance in lateral aspect, with its characteristic arrangement of the high conical spurs on the body. It can be distinguished at a glance from *A. glaciale* by (1) its more compact body and stouter legs; (2) the more numerous spurs on the trunk; (3) the lower, more truncated ocular tubercle; (4) the shorter abdomen; (5) the relatively shorter proboscis and palp, the latter "bifid" at the apex. The female genital openings are present only on the first pair of legs, whereas in *A. glaciale* they occur on the first three pairs.

Distribution.—This species was obtained at Macquarie Island together with *Tanystylum styligerum* and *T. pfefferi*. In the present collection no specimens of *Tanystylum* were obtained from further south, i.e., from the Antarctic Zone proper. *T. styligerum* has been previously recorded from Kerguelen and the Magellan District; its occurrence at Macquarie Island points to a relationship with the Kerguelen fauna. In 1914 Regan (p. 25, fig. 2 and p. 57) said that it was then unknown whether Macquarie Island should be included in the Antipodes District. Later (1916, p. 378) he found that, as far as the fishes are concerned, the Macquarie Island fauna was apparently more closely related to that of Kerguelen than to that of the Sub-antarctic islands of New Zealand.

Genus *TANYSTYLUM* Miers.

Gordon, 1932, p. 117.

TANYSTYLUM STYLIGERUM Miers.

Hodgson, 1927, p. 350, fig. 16; Gordon, 1932, p. 118.

Material.—

- (a) Macquarie Island, off rocks, below low water mark: 5 ♀♀, 3 ovig. ♂♂, 1 juv.
- (b) Garden Bay, Macquarie Island, from under stones below low water mark, 28 January, 1913 (?), H. Hamilton: 5 ♀♀ and several incomplete specimens (juv.).

- (c) Garden Bay, Macquarie Island, 27 November, 1912, on rocks below low water mark, H. Hamilton : 3 ♀♀, 1 ♂, 1 juv.
- (d) Lusitania Bay, Macquarie Island, from rocks below low water mark, 1 January, 1913, H. Hamilton : 9 ♀♀, 1 ♂, 6 juv.

TANYSTYLUM PFEFFERI *Bowvier.*

T. pfefferi Gordon, 1932, p. 119, figs. 65-68.

T. pfefferi Gordon, 1932a, p. 90, figs. 3 and 4.*

?*T. oedinotum* Loman, 1923, p. 29, fig. F.

Material.—

- (a) Macquarie Island, off rocks below low water mark : 5 ♀♀, 6 ovig. ♂♂.
- (b) Garden Bay, Macquarie Island, from under stones below low water mark, 28 January, 1913 (?), H. Hamilton : 1 ♀, 4 ♂♂.
- (c) Garden Bay, Macquarie Island, on rocks below low water mark, 27 November, 1912, H. Hamilton : 4 ♀, 10 juv.
- (d) Lusitania Bay, Macquarie Island, from rocks below low water mark, 1 January, 1913, H. Hamilton : about three dozen specimens (♀♀, ovig. and larvig ♂♂, juv.) with adherent Foraminifera, Hydroids, and ? encysted Protozoa.

Remarks.—The specimens from Lusitania Bay are very similar to those from the Magellan District (Falkland Islands), described in my "Discovery" report (1932, p. 120). They are of small size (about half that of the female syntype), with only 1-2 fine setae on each of the first three lateral processes, a less vertical abdomen and a relatively short terminal palpal segment.† They differ from the Falkland Island specimens only as regards the length of the second tibia which is half as long again as the sum of the tarsus and propodus. In this respect the typical Macquarie Island specimens are intermediate between the Falkland Island and the typical forms. There is a trace of a tubercle on the mid-dorsal surface, just anterior to the base of the abdomen, in some specimens.

In the case of the specimens from the other Macquarie Island localities (a-c), several have a distinct and rather prominent tubercle on the dorsal surface of the body as in *T. oedinotum* Loman (1923, p. 29, fig. F). The palp is, however, six- not seven-jointed, and the terminal segment tends to be rather longer than in normal specimens. In one young individual the proboscis is unusually narrowed distally. It is just probable that Loman established his species *T. oedinotum* on a female of this type, but he described the palp as seven-jointed. I see no reason for separating the specimens with a dorsal tubercle from the somewhat variable *T. pfefferi*; several other specimens show traces of a tubercle. On re-examination, Loman's type specimen of *T. oedinotum* may prove to be a synonym of *T. pfefferi*.

* In the last paragraph of the "remarks" on this species there is a regrettable mis-statement; Loman, 1923, p. 27 refers to "the cotypes sent to me"; the paragraph should read "Although Loman compared his specimens with cotypes, he does not comment on the differences listed above."

† Sum of the fifth and sixth segments subequal to the second.

FAMILY PYCNOGONIDAE.

Genus PYCNOGONUM *Brünnich*.PYCNOGONUM GAINI *Bouvier*.

Bouvier, 1913, p. 156, figs. 101-104; Calman, 1915, p. 68; Hodgson, 1927, p. 354.

Material.—

- (a) Station 2, 28 December, 1913, 66° 52' S., 145° 30' E., 288-300 fathoms: 2 ♀.
- (b) Commonwealth Bay, off Cape Denison, 3 and 4 September, 1912, 67° S., 142° 36' E., 25 fathoms: 1 ♀, 1 juv.
- (c) Commonwealth Bay, 14 December, 1913, 40-50 fathoms: 1 ♂.
- (d) Commonwealth Bay, 22 December, 1913, 350-400 fathoms: 1 ♀, 1 juv. (? ♂).

Remarks.—The specimens are, in some cases, even larger than those described by Bouvier, having a total length of 22-24 mm. They agree well with those previously described save that there is a small tubercle on the anterior angle of each of the three posterior lateral processes.

PYCNOGONUM PLATYLOPHUM *Loman*.

Gordon, 1932, p. 126.

Material.—

- (a) Macquarie Island, off rocks below low water mark: 2 ♀♀, 4 ♂♂.
- (b) Garden Bay, Macquarie Island, H. Hamilton, 1 juv., rather more compact and broader than is typical of the species.
- (c) Lusitania Bay, Macquarie Island, from rocks below low water mark, 1 January, 1913, H. Hamilton: 1 ♀, 1 ♂.

Remarks.—One female specimen from Garden Bay is abnormal in that it possesses an oviger on the right side. Only the five proximal segments are present, the distal part having been broken off. There can be no doubt as to its sex since the female genital pores are conspicuous on the dorsal surface of the second coxae of the last pair of legs. As a rule the ovigers are absent in female specimens.

Distribution.—This species appears to be restricted to the subantarctic zone, having been recorded from the Magellan District and Macquarie Island (Regan, 1914, p. 25, fig. 2).

LIST OF PAPERS REFERRED TO.

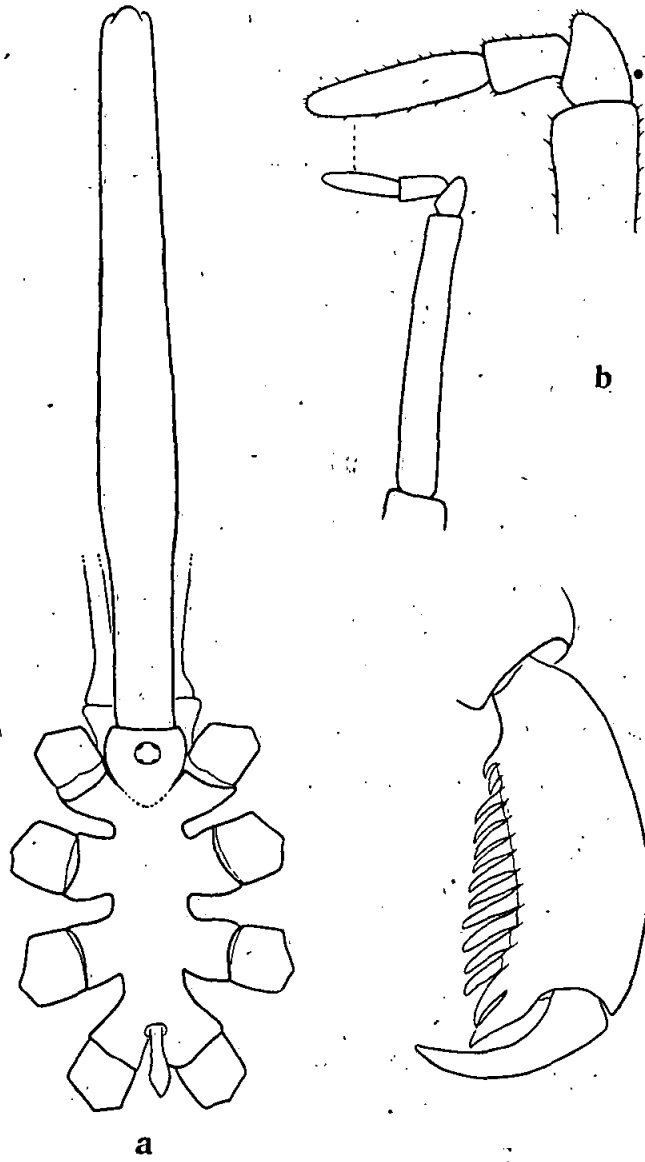
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EXPLANATION OF TEXT-FIGURES.

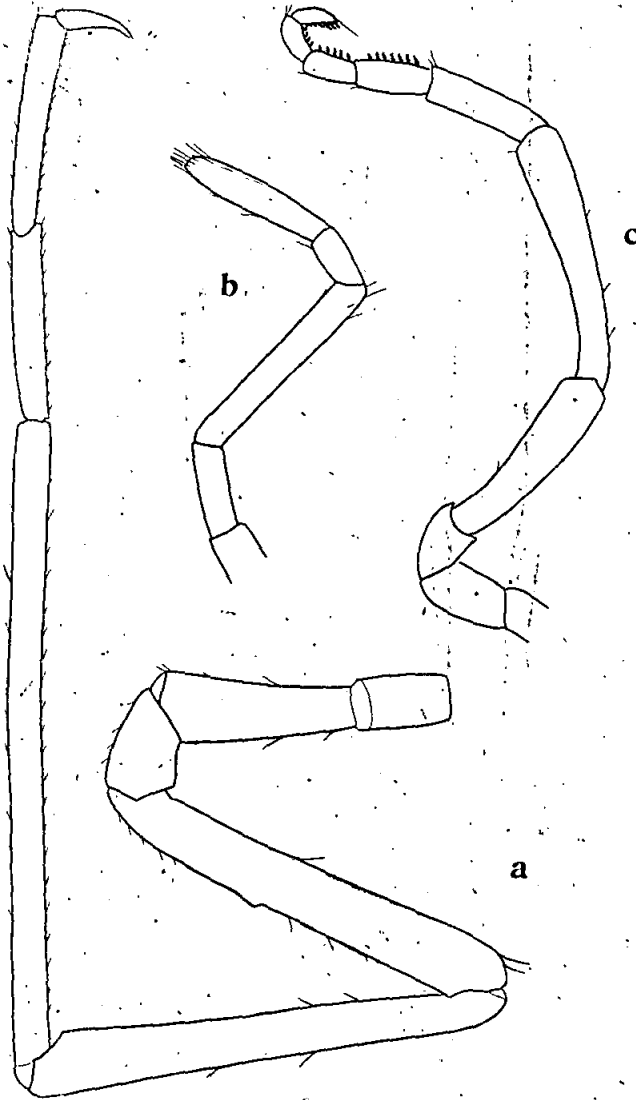
- Fig. 1. *Colossendeis longirostris* n.sp. Holotype.
a—Trunk, proboscis and abdomen in dorsal aspect. $\times 3.6$.
b—Terminal segments of palp. $\times 12$ and 27 .
c—Terminal segments of oviger. $\times 27$.
- Fig. 2. *Heteronymphon kempfi* Gordon.
a—Third leg. $\times 47$.
b—Palp. $\times 100$.
c—Oviger. $\times 47$.
- Fig. 3. Hairs from the walking legs of—
a—*Pallenopsis hodgsoni* nom. nov.
b—*Pallenopsis vanhoeffeni* Hodgson.
c—*Pallenopsis villosa* Hodgson.
d—*Pallenopsis pilosa* (Hoek), syntype. $\times 47$.
- Fig. 4. Coxae of third walking leg of female of—
a—*Pallenopsis vanhoeffeni* Hodgson.
b—*Pallenopsis villosa* Hodgson.
c—*Pallenopsis pilosa* (Hoek), syntype.
d—*Pallenopsis hodgsoni* nom. nov.
a and *b* $\times 9$; *c* and *d* $\times 12$.
- Fig. 5. Oviger of—
a—*Pallenopsis villosa* Hodgson, ♀.
b—*Pallenopsis pilosa* (Hoek), syntype, ♀.
c—*Pallenopsis vanhoeffeni* Hodgson, ♀.
d—*Pallenopsis hodgsoni* nom. nov., ♀.
e—*Pallenopsis vanhoeffeni* Hodgson, ♂.
a, *b* and *d* $\times 18$; *c* and *e* $\times 14$.
- Fig. 6. *Pallenopsis spicata* Hodgson, ♀. *a*—Coxae of third leg. $\times 9$.
b—Oviger. $\times 20$. *Pallenopsis vanhoeffeni* Hodgson—*c*—Cephalic segment of young. $\times 12$. *d*—Distal segments of third leg of adult. $\times 20$.

Fig. 7. *Austrodecus breviceps* n.sp.—
a—Holotype in dorsal aspect.
b—Paratype in lateral aspect. $\times 30$ approx.

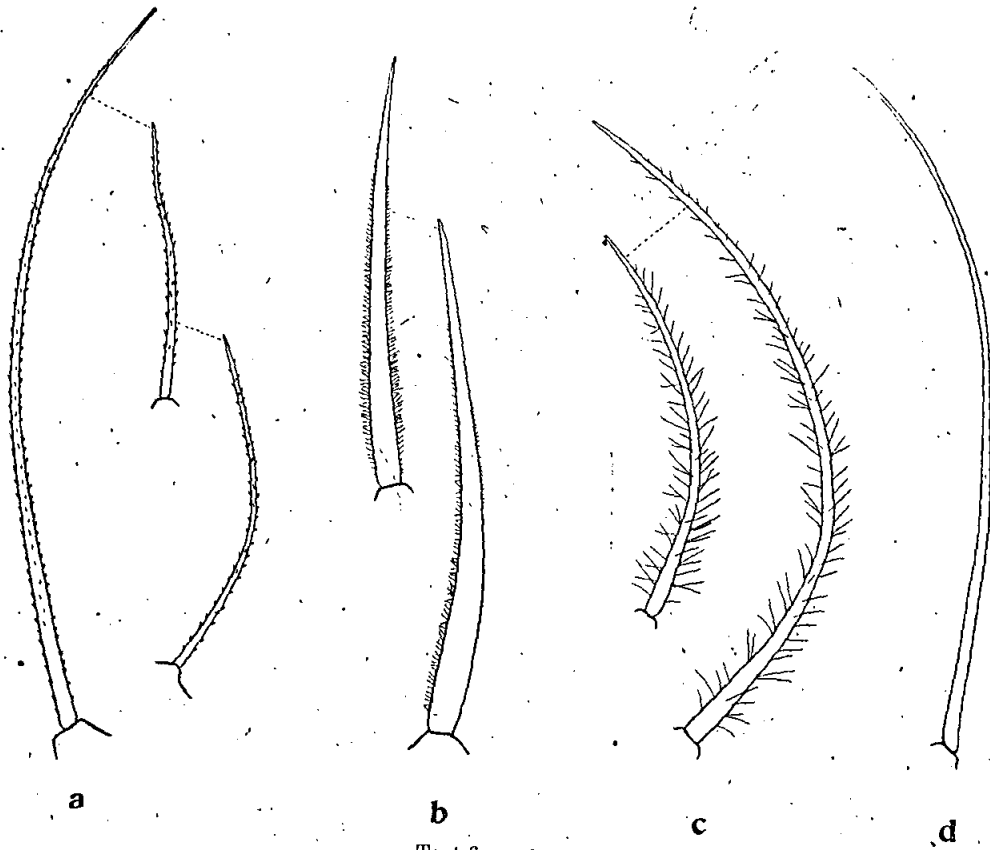
Fig. 8. *Austrodecus breviceps* n.sp.—
a—Palp of holotype.
a'—Palp of male paratype (length 1.44 mm.).
b—Oviger of holotype.
c—Oviger of male paratype.
d—First leg of female paratype, showing genital pore.
e—Third leg of same specimen.
a—c $\times 100$; d and e $\times 60$.



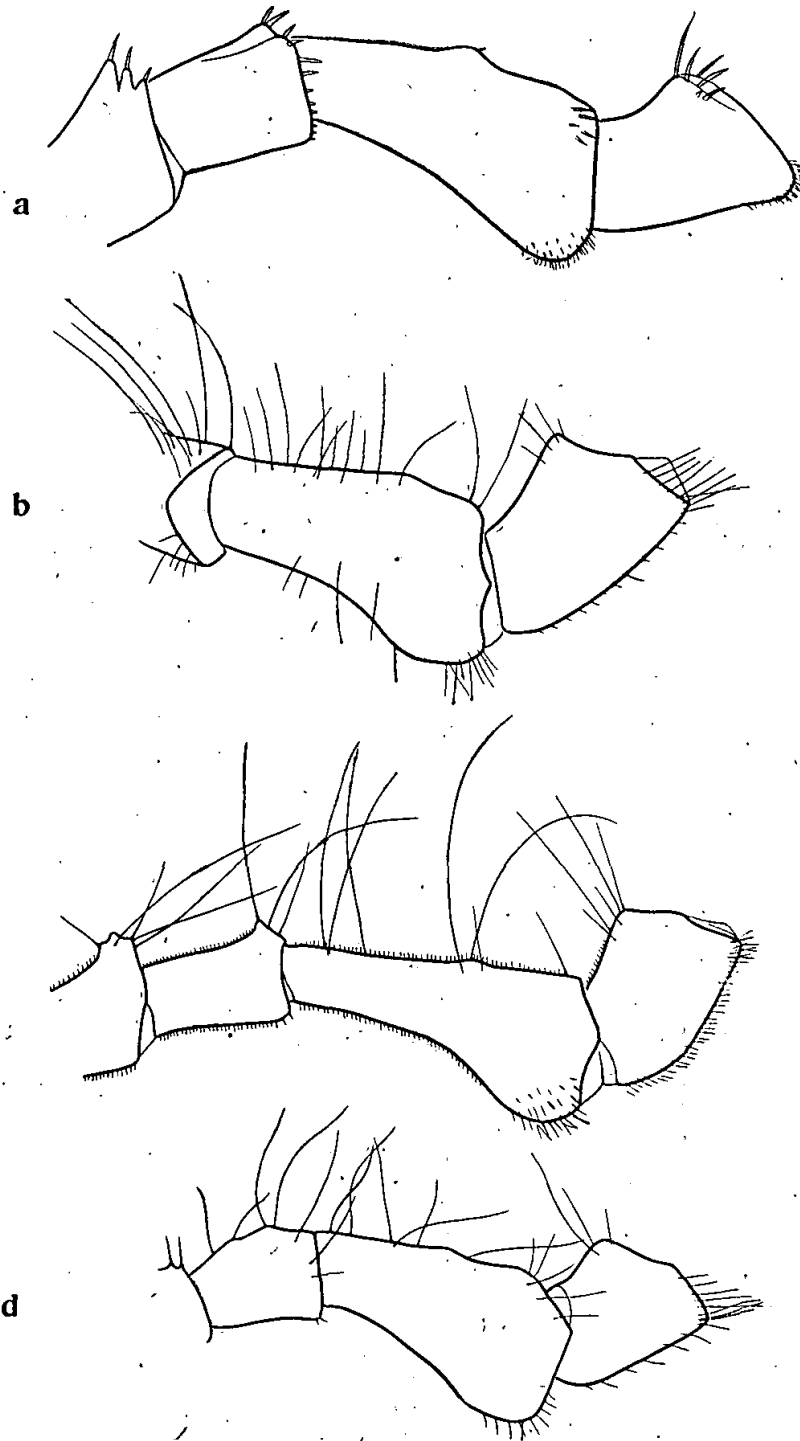
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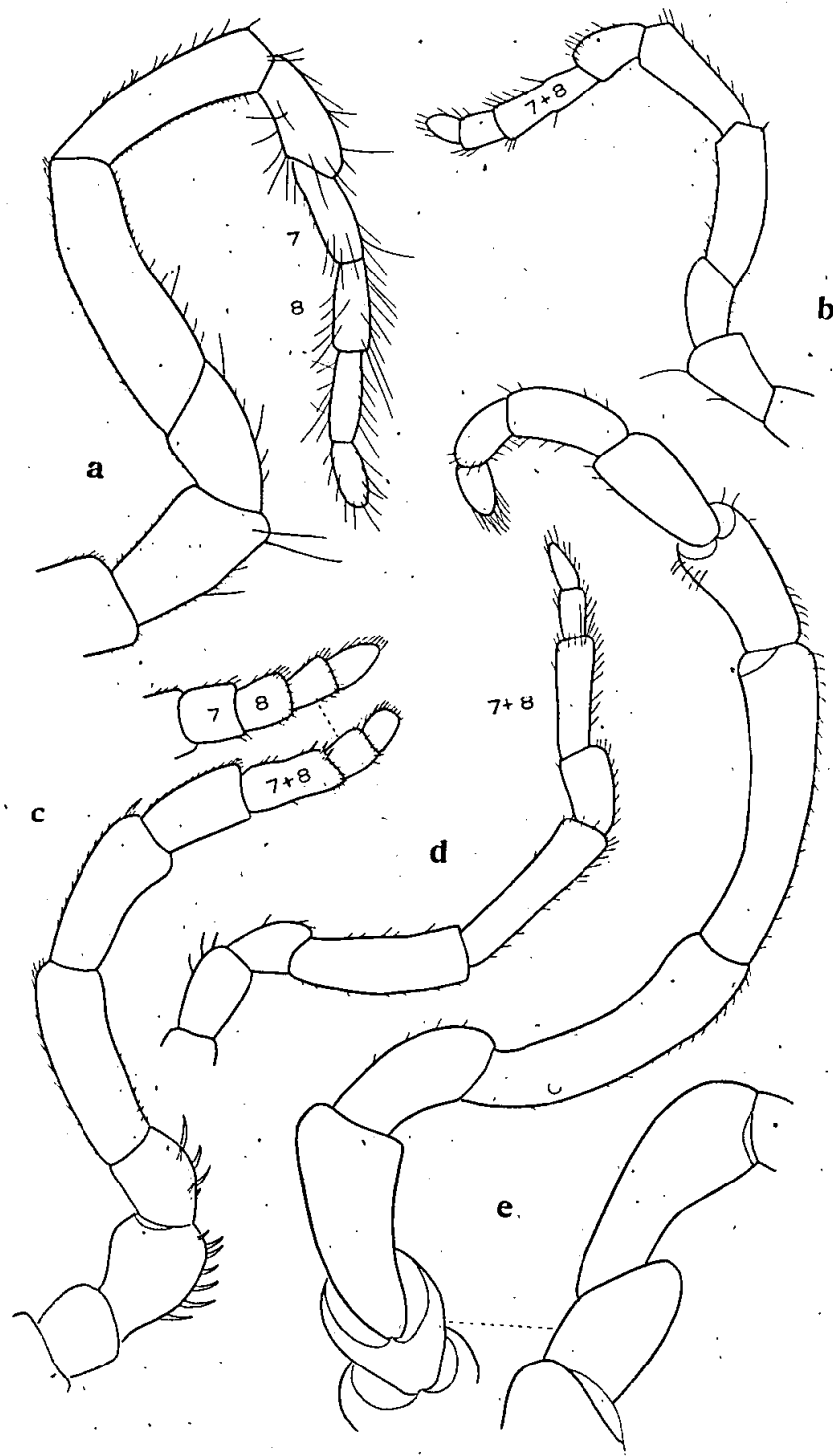
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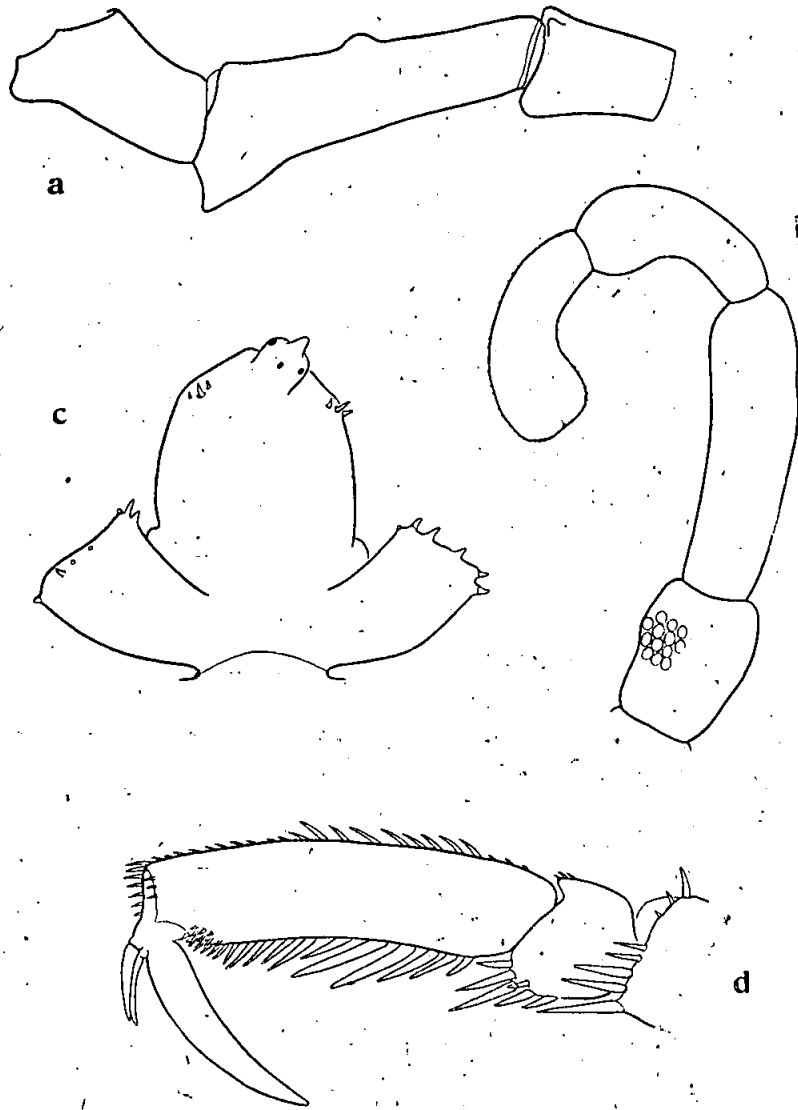
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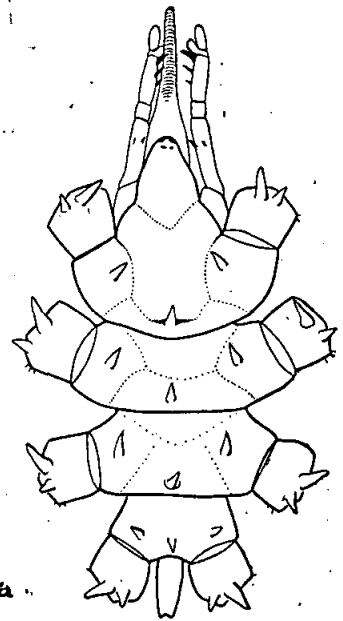
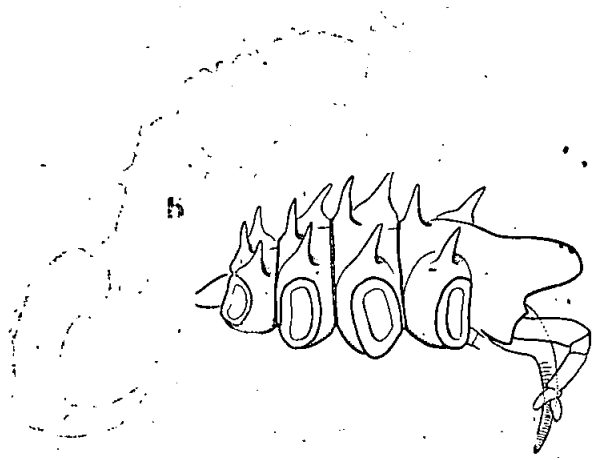
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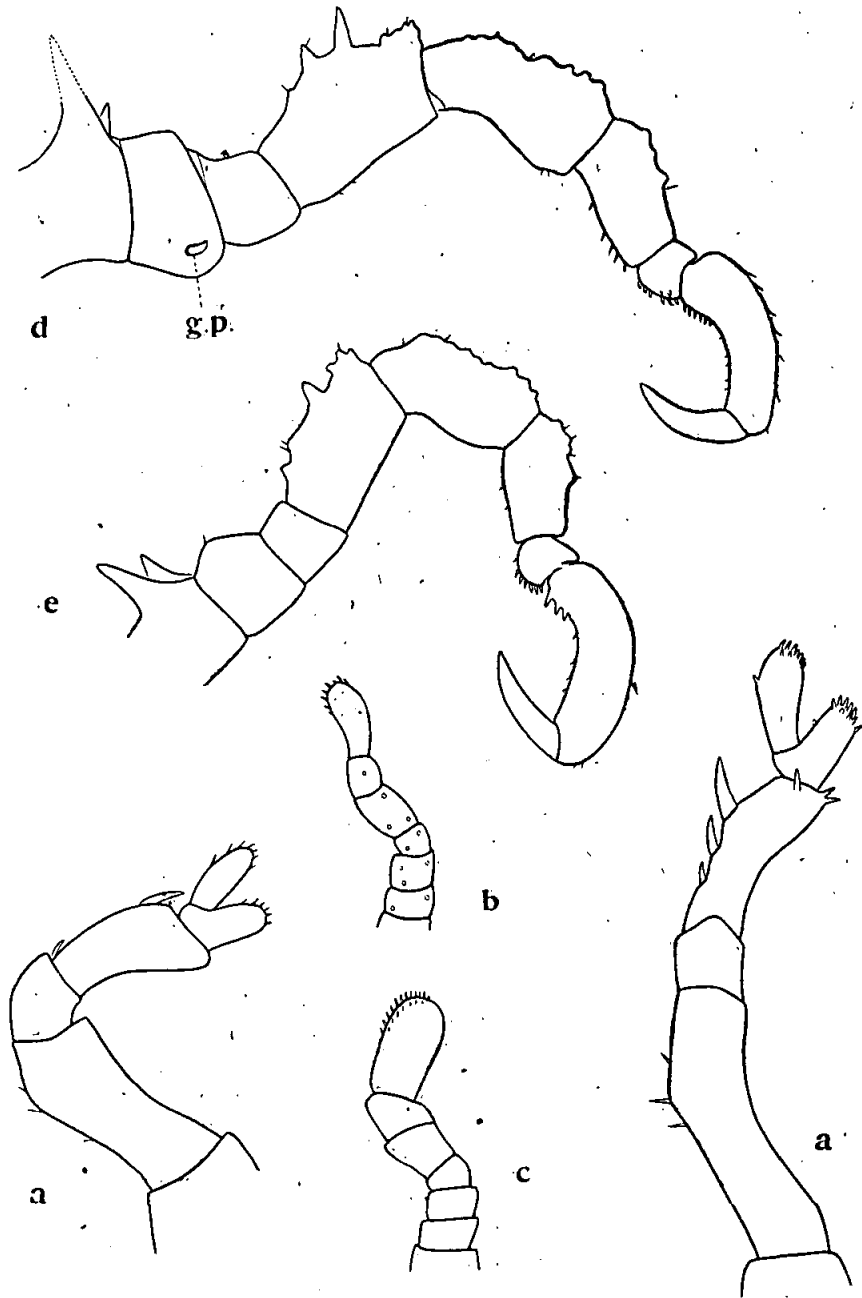
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