

# Some Pycnogonida from Cook Strait, New Zealand, with descriptions of two new species.\*

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## Abstract

THE following species of Pycnogonida are recorded from Cook Strait: *Nymphon longicoxa* Hoek, *Nymphon maoriana* n.sp., *Pallenopsis obliqua* (Thomson) and *Pallenopsis mauii* n.sp. An immature specimen of *Pallenopsis* is also recorded as a bathypelagic form from 500–600 fathoms. The specimen is described but not named.

## INTRODUCTION

THE pycnogonid fauna of New Zealand is not well known, and as there are no records of these animals from the Cook Strait region the present paper contributes a little to our knowledge. Through the kindness of Professor L. R. Richardson a small, but interesting collection of Pycnogonida, mostly from deep water, has been made available to the author.

It is perhaps remarkable that the five species represented in the collection should be referable to two genera, and that other forms generally considered to be characteristic of deep water should be absent. It may be that these forms will turn up later, as Fage (1956b) has recorded five species of *Colossendeis*, typically a deep water genus, from other deep water localities off the New Zealand coast.

The following species are recorded here:—

*Nymphon longicoxa* Hoek

*Nymphon maoriana* n.sp.

*Pallenopsis obliqua* (Thomson)

*Pallenopsis mauii* n.sp.

*Pallenopsis* sp.

The types of new species are deposited in the Dominion Museum, Wellington.

Family NYMPHONIDAE Wilson, 1878

Genus NYMPHON J. C. Fabricius, 1794

*Nymphon longicoxa* Hoek.

*Nymphon longicoxa* Hoek, 1881, p. 38, Pl. II, Figs. 1–5; Pl. XV, Figs. 8–9. Hodgson, 1908, p. 165, Pl. I, Figs. 3, 3a. Bouvier, 1913, p. 72 (in key). Loman, 1923, p. 14 (in key). Gordon, 1932a, p. 106, Figs. 7, 8 (redescription and designation of types). Gordon, 1932b, pp. 28, 32, 34. Fage, 1956a, p. 164. Fage, 1956b, p. 168.

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**MATERIAL:** Collection No. VUZ. 58; Stn. FOOR. South of Cape Palliser. 42° 7' S; 174° 57' E; 31/3/56; time, 0710–1035 hrs; bottom depth 1,300 fathoms; grey mud; long line and baited trap. 1 damaged specimen.

Although the only specimen of this species in the collection lacks seven legs and the distal joints of the third left leg there is no doubt as to its identity. The specimen agrees with Gordon's (1932a) redescription of the type, except that there are 43 denticulate spines on the oviger instead of 38, but Gordon notes that there may be up to 44. The prominently reflexed tip of the dactylus, the length of the second coxa, and the presence of eyes distinguish this species from otherwise similar forms.

**DISTRIBUTION:** This species has been recorded only twice before; by Hoek (1881), from 40° 28' S; 177° 43' E. (South-East of Napier, N.Z.) in 1,100 fathoms, and by Hodgson (1908), from 71° 22' S; 16° 34' W (near the coast of Princess Astrid Land, Antarctica) in 1,410 fathoms. It seems then that this is truly a deep water species. The present specimen comes from a depth intermediate between those known previously.

**Nymphon maoriana** n.sp. Figs. 1–8.

**MATERIAL:** Off Kahu Rocks, Wellington East Coast; "from Kelp holdfast", 20–30 fathoms; 18/10/56; Coll. J. C. Yaldwyn; 3 females, 2 males (1 ovigerous), 1 immature specimen. (One female specimen is the holotype, the others are paratypes.)

Cook Strait, trawled in approximately 40 fathoms; November, 1956. Coll. J. C. Yaldwyn. Two females.

Off D'Urville Island (Western end of Cook Strait); in shell with *Eupagurus novaezelandiae* Coll. G. M. Thomson; no date; 1 ovigerous male.

**DESCRIPTION**

*Trunk* slender, segmented, without spines, lateral processes separated at ends by about their own width, proboscis slightly longer than neck from above, cylindrical, tapering slightly towards tip. Neck short. Ocular tubercle low, rounded above, arises just anterior to first lateral processes; the pigmentation of the eyes appears very variable, they are heavily pigmented in some specimens and barely discernible in others.

*Abdomen* reaches just beyond the last lateral processes, elevated at an angle of about 30°.

*Chelifore* scape widening slightly towards the distal end, scape equal in length to chela. immovable finger equal in length to palm, dactylus slightly longer. Immovable finger armed with 24 spinules, dactylus with 38. The only spines on the chela are the single spines at the base of each finger.

*Palp* of 5 segments, the first the shortest, and the second the longest. In the holotype the proportions are 1:8.2:5:4.2:3.3.

*Oviger* (holotype-female) terminal claw a little shorter than the tenth segment, and bearing 11 spinules. Total number of denticulate spines 36 (12 + 8 + 8 + 8). Fourth, fifth and sixth segments nearly straight and in the proportion 1.6:2:1. In the male paratypes the fourth, fifth, and sixth segments of the oviger are markedly curved; the effect of this is to twist the oviger like a cork screw.

*Third leg* very slender, with sparse very fine setae, second coxa longer than the sum of the other two; second tibia the longest joint, almost half as long again as the femur. Tarsus  $\frac{3}{5}$  the length of the propodus, claw half as long as the propodus, auxiliaries well developed ( $\frac{3}{8}$  length of claw); basal spines of propodus few and feeble (Fig. 3). The femora of the females are much stouter than those of the males.

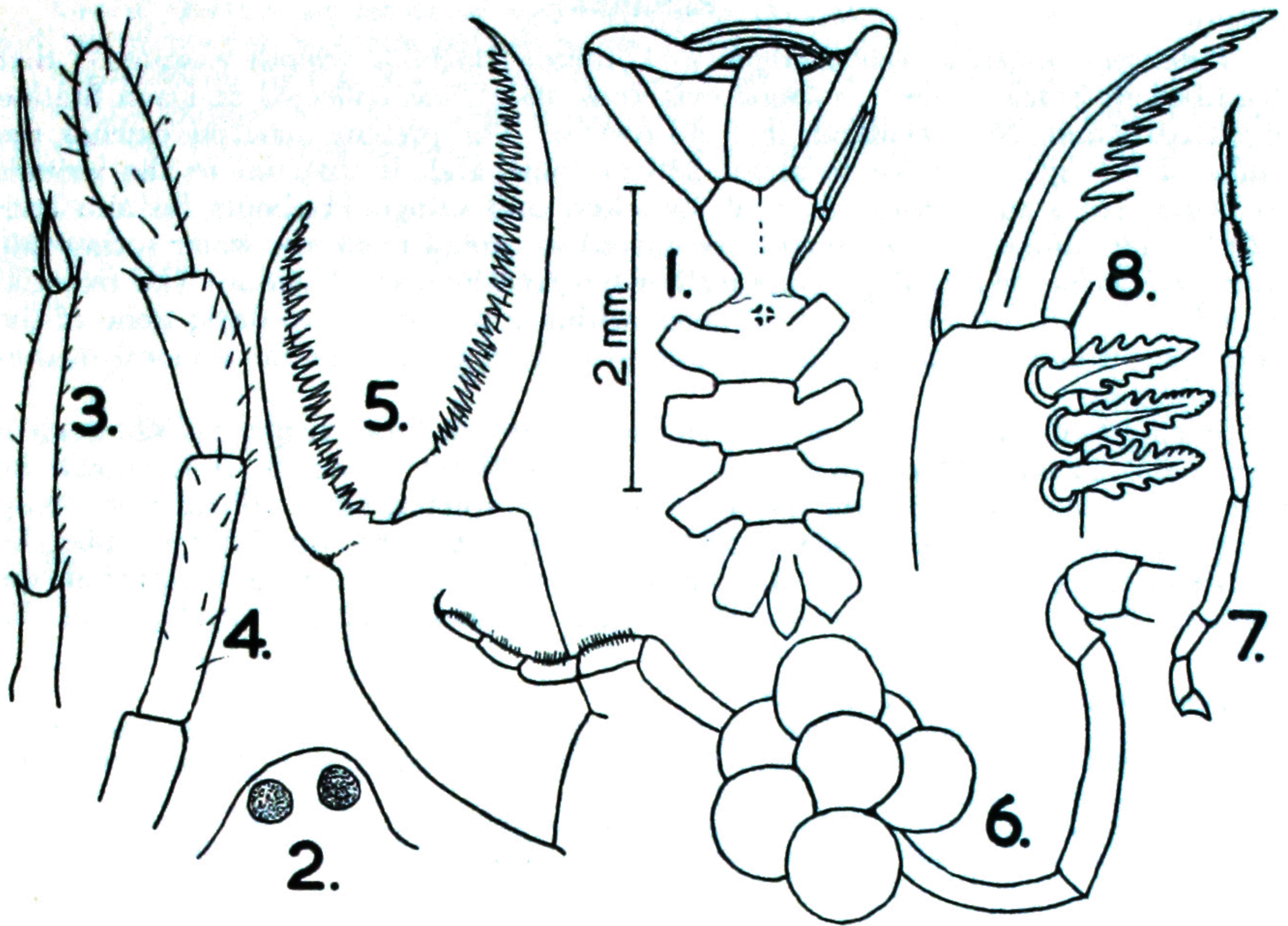
*Measurements* (in mm, holotype first followed by male paratype in brackets).

Length proboscis 1.1 (0.8), width of proboscis 0.54 (0.5), total length (tip proboscis to tip of abdomen) 3.8 (3.0), length of cephalon 1.33 (1.1), width of cephalon 1.33 (1.1), length of chelifore scape 1.25 (1.0), width across second lateral processes 1.33 (1.1), length of abdomen 0.58 (0.4).

*Third leg:* First coxa 0.45 (0.4), second coxa 1.0 (1.3), third coxa 0.45 (0.4), femur 2.5 (2.35), first tibia 3.25 (2.68), second tibia 4.25 (3.15), tarsus 0.75 (0.63), propodus 1.15 (1.1), claw 0.8 (0.16), auxiliaries 0.3 (0.16).

**REMARKS**

The genital apertures in the female are situated on slight eminences at the distal ends of the second coxae of all legs, but in the males these apertures are restricted to a similar position on the third and fourth pairs of legs. The apertures are much smaller in the males. There appears to be a considerable range of variation in the



FIGS. 1-8. *Nymphon maoriana* n.sp. 1—Dorsal view. 2—Lateral view of ocular tubercle. 3—Distal joints of third leg. 4—Palp. 5—Chela. 6—Male oviger with egg mass (paratype). 7—Female oviger. 8—Tip of female oviger. All figures except 6 of holotype. Scale applies to Fig. 1 only.

colour of members of this species; in spirit the colour ranges from the normal light straw colour to bright orange, and to a straw colour with marked patterns of pink.

It is with some hesitation that I propose this further addition to the already unwieldy genus *Nymphon*, but whilst this species has no remarkable features, the combination of the features it possesses seems to separate it from other rather similar species. *N. maoriana* falls amongst those species placed in "Group I" by Gordon (1932b), and is rather similar to *N. subtile* Loman, but is distinguished from this species by the closer spacing of the lateral processes and the greater number of spinules on the fingers of the chelae.

Family PALLENIDAE Wilson, 1878

Genus PALLENOPSIS Wilson, 1881

***Pallenopsis obliqua* (Thomson)**

*Phoxichilidium obliquum* Thomson, 1884, pp. 247-248, Pl. 15, Fig. 6, Pl. 16, Figs. 1, 2.

*Pallenopsis obliqua* Loman, 1916, pp. 20-21. Stock, 1954, pp. 64-65, Fig. 30, b-f. Stock, 1956, pp. 85-86, Fig. 9C.

*Pallenopsis aculeata* Loman, 1916, pp. 21-25. Figs. A-D.

**MATERIAL:** Collection No. VUZ. 48; Stn. BOL. Cook Strait, 41° 31' 30" S; 174° 48' E; 22/2/56; time, 1210-1330 hrs; bottom depth 70 fathoms beam trawl, 2 females, 1 male.

VUZ. 49; Stn. BOL; Cook Strait, 41° 31' 30" S; 174° 48' E; 22/2/56, time, 1430-1515 hrs; bottom depth 70 fathoms; beam trawl; 1 female, 1 male, 1 immature.

VUZ. 55; Stn. GUJ. Off Cape Palliser, 41° 41' S; 175° 13' E; 23/2/56; time, 0630-0830 hrs; bottom depth 40-100 fathoms; beam trawl; 4 females.

VUZ. 99; Stn. DOJ. Off Palliser Bay, 41° 34' 31" S; 174° 43' 30" E; 29/8/57; time, 1115-1230 hrs; bottom depth about 150 fathoms; shell, sand, gravel; beam trawl; 1 male.

VUZ. 100; Stn. FOJ. Off Palliser Bay, 40° 36' S; 174° 44' E; 29/8/57; time, 1315-1430 hrs; bottom depth about 380 fathoms; beam trawl; 2 males, 2 females.

## REMARKS

Thomson's material was dredged in Lyttelton Harbour (depth unstated); that described by Stock (1954) (a single ovigerous male) was collected at Dana Station 3632, Auckland, New Zealand, in 5-30 metres. The present material extends the range of this species down to about 380 fathoms, and, if material in the writer's collection from the littoral zone of Lyttelton and Otago Harbours be also considered, the animal's range may be considered to extend from low water spring tide mark to 380 fathoms, and geographically from Auckland to Dunedin. The material in collections 48, 49 and 55 was all taken within a period of two days; none of the males was ovigerous, but numerous large ova could be seen in the femoral ovaries of the females.

Stock (1954) notes that in his specimen "the chelifore scape has not such a prominent dorsal tubercle in its middle as figured by Thomson". It should be pointed out that there is some variation in this character, but a tubercle or clump of spines is present in this position in all the material examined. Similarly the tubercles on which the genital apertures are situated are much higher in the males than the females. As is usual in the genus the ovigers are more strongly developed in the males.

**Pallenopsis mauii** n.sp. Figs. 9-19

**MATERIAL:** Collection No. VUZ. 96; Stn. BOQ. Off Palliser Bay, 41° 31' S; 174° 55' E; 28/8/57; time, 1330-1530 hrs; bottom depth about 380 fathoms; mud, stones, rock; beam trawl; 1 male (holotype).

VUZ. 75; Stn. KOP. Off Palliser Bay, 40° 45' S; 174° 53' E; 24/11/56; time, 1330-1530 hrs; bottom depth 500-600 fathoms; baited trap; 1 damaged female taken from meshes of trap (paratype).

## DESCRIPTION

*Trunk* slender, smooth, without spines, clearly segmented, lateral processes separated by their own width distally, less proximally; length of cephalon equal to length of last three segments; cephalon with a slight constriction between the bases of the palps and the first lateral processes, and produced anteriorly over the base of the proboscis. Ocular tubercle conical, rounded at tip, height greater than diameter at base; four eyes.

*Proboscis* long, cylindrical, with a slight median swelling, ventral surface of tip of proboscis covered with fine spines in female, fewer spines in male.

*Abdomen* fusiform with a slight median constriction, rises from trunk at an angle of 35-40°; reaches beyond the end of the first coxa of the last leg.

*Chelifore* scape of male distinctly 2-jointed, suture between joints oblique, joints swollen at suture; female scape apparently composed of one segment, with three fine hairs where one would expect to find the suture. Fingers of chelae at right angles to the proboscis; immovable finger slightly longer than dactylus, tips cross when chela is closed. A number of fine irregular denticulations are found on the middle of the cutting edge of the dactylus. Fingers of the chela shorter than the palm. Fingers of male chela not as well developed as in female. A prominent spiny cushion is found at the base of the dactylus in the female but not in the male.

*Palp* a single, short, bluntly pyramid-like joint, slightly longer in male than in female.

*Oviger* 10-jointed in both sexes, as is usual in the genus this limb is better developed in the male than in the female. Fourth joint the longest, and in the male this bears a slight lateral swelling, joints 7-9 with lateral setae on their inner margins. The terminal joint of the male bears five spines. The length of joints in mm. in male and female are given below:

Joint	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Male	0.7	1.95	1.2	2.2	1.95	1.1	0.8	0.6	0.4	0.3
Female	0.6	0.85	0.5	1.1	1.1	0.55	0.4	0.4	0.4	0.25

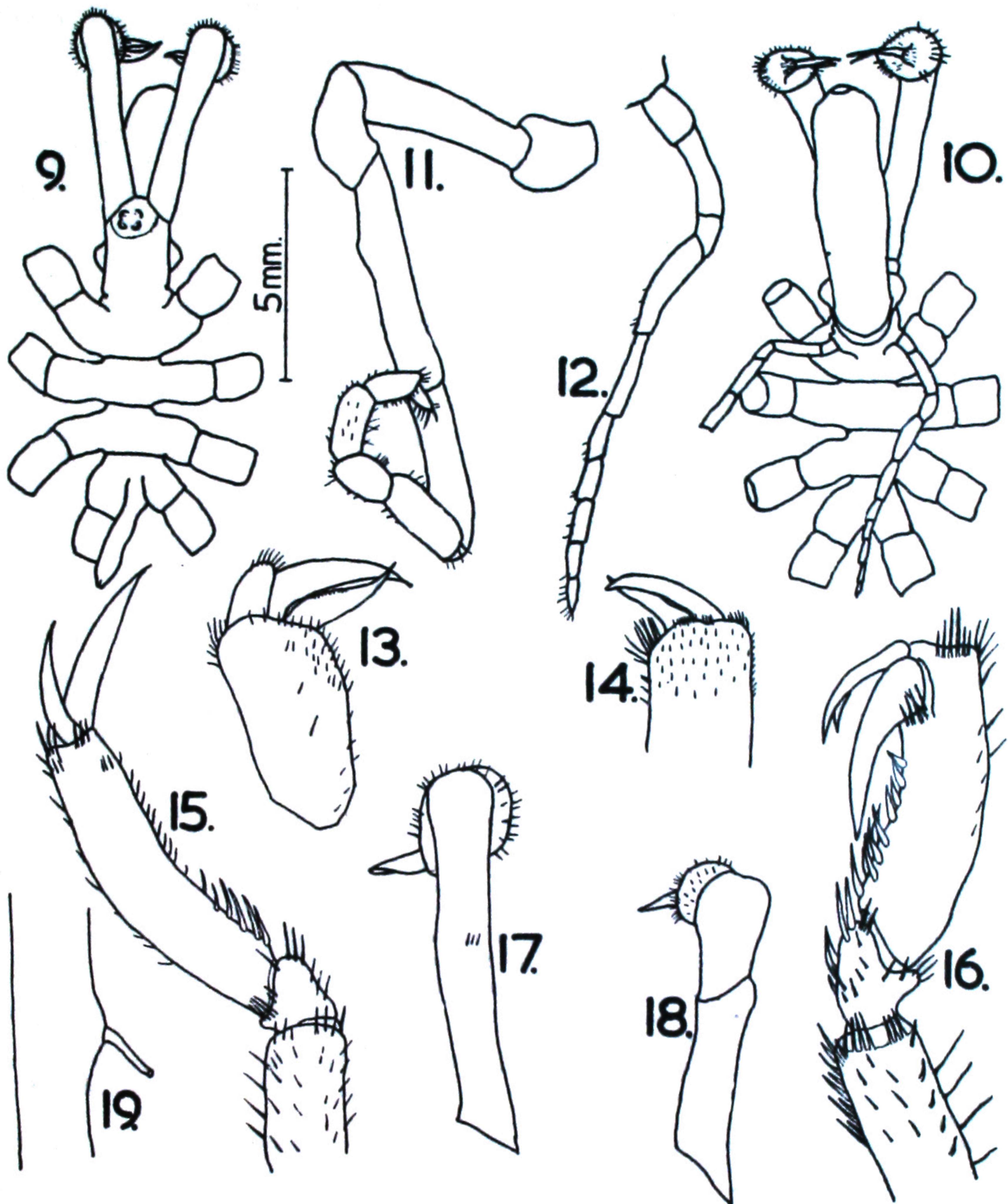
*Third Leg* long, slender, sparsely clothed with fine hairs; the first coxa is half as long as the third, which is half as long as the second. Femur and first tibia of equal length; femoral cement glands of male with ducts a little shorter than width of femur, inserted at 5/9ths of femoral length; second tibia is the longest joint, and relatively longer in female than in male. Tarsus very short with a group of stout spines on the ventro distal extremity, propodus small, all basal spines stronger in the male than in the female, where there are four well developed basal spines and a number of smaller spines inserted distally to these; terminal claw half as long as propodus; auxilliary claws well developed.

*Genital apertures* are placed on small swellings on the ventral sides of the distal portions of all second coxae in the female, but only on the third and fourth in the male.

*Measurements* (in mm, holotype first followed by female paratype in brackets).

Length proboscis 4.0 (5.6), width proboscis 1.1 (1.5), length cephalon 3.6 (3.5), width cephalon 3.9 (4.6), length abdomen 2.2 (2.7), total length 11.2 (11.7), width second lateral processes 4.4 (4.1), length chelifore scape 4.4 (4.5).

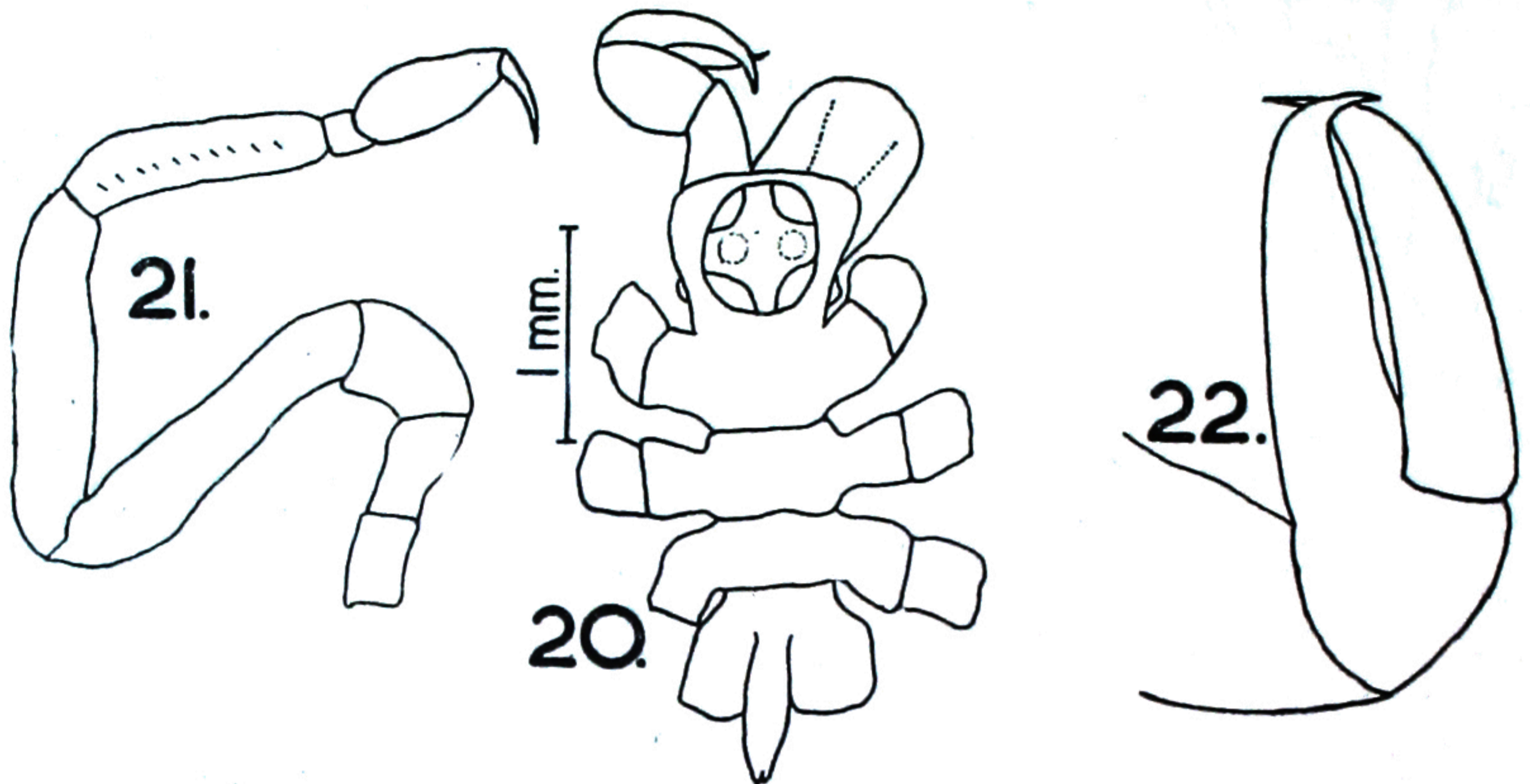
Third leg of holotype, and fourth leg of paratype (both third legs of paratype damaged): first coxa 1.1 (1.2), second coxa 4.1 (4.9), third coxa 1.95 (2.2), femur 10.0 (15.7), first tibia 11.5 (15.7), second tibia 15.6 (21.3), tarsus 0.55 (0.55), propodus 2.2 (2.2), claw 1.1 (1.1).



FIGS. 9-19. *Pallenopsis mauii* n.sp. 9 and 10—Dorsal and ventral views of female. 11—Male oviger. 12—Female oviger. 13—Female chela. 14—Male chela. 15—Distal joints of fourth leg of female. 16—Distal joints of third leg of male. 17—Female chelifore. 18—Male chelifore. 19—Cement gland of third leg of male. Scale applies to Figs. 9 and 10 only.

## REMARKS

I have some slight doubt as to whether the female specimen is in fact of the same species as the male described here or of another very similar and undescribed species. This matter cannot be taken any further on the material at present available. The lateral swelling on the fourth oviger segment of the male is reminiscent of the subgenus *Pallenopsodon* Stock (1956), but since this species has a tubular duct to the cement gland, and differs in the armature of the 10th oviger joint it is no doubt to be placed in *Pallenopsis* s. str. I name this fine species after the mythical Maori figure Maui, who is said to have fished up the North Island of New Zealand, and was therefore probably the first man to have fished in Cook Strait.



Figs. 20-21. *Pallenopsis* sp. 20—Dorsal view. 21—Third leg. 22—Chela. Scale applies to Fig. 20 only.

***Pallenopsis* sp. Figs. 20-22.**

**MATERIAL:** Collection No. VUZ. 85; Stn. CUK. South of Cape Palliser.  $41^{\circ} 47' S$ ;  $175^{\circ} 02' E$ ; 19/4/57; time, 1915-2400 hrs; bottom depth about 800 fathoms; 4 metre cone net towed at about 600 fathoms; 1 juvenile specimen.

## DESCRIPTION

*Trunk* distinctly segmented, without spines or setae, rather slender, lateral processes separated by about half their own diameter; cephalic segment almost equal in length to the other three segments, produced a considerable distance over the base of the proboscis. Height of ocular tubercle equal to the diameter of the tubercle at the base, rounded above, four eyes with a pair of rounded eminences on the dorsal surface. (Fig. 20.)

*Proboscis* cylindrical, uniform diameter throughout its length.

*Abdomen* long, fusiform, reaching to the middle of the second coxa of the fourth leg; rises at an angle of  $30^{\circ}$  from the trunk.

*Chelifore* short, stout, scape distinctly two segmented, the first slightly shorter than the second, chela at right angles to scape, fingers longer than palm, when closed the slender tips of the fingers cross.

*Palp* a small papilla between the bases of the chelifore and oviger.

*Oviger* very small, of five segments, obviously immature.

*Third leg* long, slender, coxae subequal, femur and first tibia equal and longer than second tibia, tarsus very short, propodus rather bulbous with a lateral row of small spines, no basal spines, terminal claw half as long as propodus. Auxilliary claws absent.

*Measurements* (in mm). Length proboscis 1.25, width proboscis 0.5, length cephalon 1.2, width cephalon 0.9, total length 2.4, width second lateral process 1.25, length abdomen 0.65.

*Third leg:* First coxa 0.5, second coxa 0.6, third coxa 0.7, femur 2.0, first tibia 2.0, second tibia 1.5, tarsus and propodus 1.0, claw 0.5.

## REMARKS

The specimen is immature, the ovigers consist of only five segments, and the genital apertures appear to be absent. The interest of the specimen lies in the fact that it was taken in a plankton tow net at 600 fathoms. As the net used was of the open type this specimen could have been taken at a lesser depth, but as the water in the vicinity of this station is about 800 fathoms deep there is little likelihood of its being picked up off the bottom. Gordon (1932b) reported an immature specimen of “? *Pallenopsis*” (= *Pallenopsis calcanea* Stephensen 1933?) taken in similar circumstances from 850–1100 m in the South Atlantic off the coast of southern Brazil. Similarly, Carpenter (1905) reported an adult of *Pallenopsis holti* Carpenter = *P. tritonis* Hoek, taken with a tow net in 382 fathoms off Achill Head, Ireland. Stephensen (1933) and Hedgepeth (1948) both record *P. calcanea* from tow nettings; the latter author remarks that it is “evidently a bathypelagic species”. The present specimen resembles Gordon’s and Stephensen’s figures of *P. calcanea* in the presence of a pair of small tubercles on the dorsal surface of the ocular tubercle, but differs from that species in the chelae, legs, and ovigers. This specimen does not appear to be the juvenile of either of the species of this genus so far recorded from New Zealand.

## LITERATURE CITED

- BOUVIER, E. L., 1913. Pycnogonides du “*Pourquoi-Pas?*” Deuxième *Expedition Antarctique Francaise (1908–1910)* 6: 1–169.
- CARPENTER, G. H., 1905. The Marine Fauna of the Coasts of Ireland, Pt. VI, Pycnogonida, *Fisheries, Ireland Sci. Invest., 1904, IV*: 1–8.
- FAGE, L., 1956a. Les pycnogonides du genre *Nymphon*, *Galathea Report* 2: 159–165.
- 1956b. Les pycnogonides (excl. le genre *Nymphon*), *Galathea Report*, 2: 167–182.
- GORDON, I., 1932a. Re-description of some Type-specimens of Pycnogonida of the genus *Nymphon*, *Ann. Mag. Nat. Hist.*, ser. 10, XI: 97–120.
- 1932b. Pycnogonida. *Discovery Reports*, 6, 138 pp.
- HODGSON, T. V., 1908. Pycnogonida of the Scottish National Antarctic Expedition, *Trans. Roy. Soc. Edin.* 46: 159–188.
- HEDGEPETH, J. W., 1948. The Pycnogonida of the Western North Atlantic and the Caribbean, *Proc. U.S. Nat. Mus.*, 97: 157–342.
- HOEK, P. P. C., 1881. Report of the Pycnogonida dredged by H.M.S. Challenger during the years 1873–1876 *Challenger Reports*, 3, 167 pp.
- LOMAN, J. C. C., 1916. *Pallenopsis* and *Rigona*, with descriptions of a new species, *Zool. Med. Rijks-Mus. Leiden*, 2: 15–26.
- 1923. The Pycnogonida. *Further zool. results Swedish Antarctic Expedition, 1901–1903.*, 1, (2) 41 pp.
- STEPHENSEN, K., 1933. Pycnogonida, Godthaab Expedition 1928, *Medd. Grønland*, 79, (6) 46 pp.
- STOCK, J. H., 1954. Pycnogonida from Indo-West-Pacific, Australian, and New Zealand waters, *Vidensk. Medd. fra Dansk naturh. Foren.*, 116: 1–168.
- 1956. Tropical and Sub-tropical Pycnogonida, chiefly from South Africa. *Vidensk. Medd. fra Dansk naturh. Foren.* 118: 71–113.
- THOMSON, G. M., 1844. On the New Zealand Pycnogonida with descriptions of new species, *Trans. N.Z. Inst.*, 16: 242–248.

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