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Annals and Magazine of Natural History: Series 8

Publication details, including instructions
for authors and subscription information:

<http://www.tandfonline.com/loi/tnah14>

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Published online: 11 Sep 2009.

To cite this article: T.V. Hodgson (1915) VIII.—The Pycnogonida collected by the 'Gauss' in the antarctic regions, 1901-3.—Preliminary report , Annals and Magazine of Natural History: Series 8, 15:85, 141-149, DOI: [10.1080/00222931508693621](https://doi.org/10.1080/00222931508693621)

To link to this article: <http://dx.doi.org/10.1080/00222931508693621>

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VIII.—*The Pycnogonida collected by the 'Gauss' in the Antarctic Regions, 1901-3.—Preliminary Report.* By T. V. HODGSON.

I REGRET that I have been so long in working out the collection of the Pycnogonida made by the German Antarctic Expedition ('Gauss') in 1901-3. I hope that the final drawings and memoranda will be completed in the course of a few weeks at the outside, but, in order to secure the priority of description in certain species, I desire to publish the following preliminary report. The collection is a fairly rich one, and while it shows certain strong relations to those of other expeditions, it is, on the other hand, quite distinctive. It contains three new genera and twenty new species from the Antarctic and two more from tropical and temperate seas, as follows :—

Colossendeis glacialis.

Colossendeis glacialis, Hodgson, Pycnogonida, 'Discovery,' 1907.

A single specimen of this species was taken in the 'Gauss' winter-quarters.

NOTOENDEIS.

This new genus is established to mark the difference between the large and well-known *Colossendeis* and closely allied species.

Body perfectly segmented, with short and distinctly separated lateral processes and with well-developed eyes.

Proboscis very large.

Palps nine-jointed.

Oviger ten-jointed, with a terminal claw.

Notoendeis germanica.

The proboscis is as long as the body, and the terminal joints of the palps are as 8--5.5—4.5.

The body is robust and smooth.

Winter-quarters, 400 m.

Pipetta australis.

The genus was established by Dr. Loman for a tropical species, and now includes an antarctic species taken near the 'Gauss' winter-quarters in 2450 m.

- The specific characters of this antarctic species are :—
 Ocular tubercle long, conical, and without eyes.
 Tarsus very short, not one-fifth the length of the propodus.

Pentanympyon antarcticum.

Pentanympyon antarcticum, Hodgson, Ann. & Mag. Nat. Hist. (7)
 vol. xiv. (1904).

This species has been recorded by every antarctic expedition, and has a circumpolar distribution.

Nymphon unguiculatum.

Body slender, with rather long but widely separated lateral processes. Quite smooth. Ocular tubercle short and stout, rounded above the eyes.

The joints of the palps vary but little, 4—5—4·5—5.

The legs are clothed sparingly with short spinous setæ. The terminal claw is long and there are no auxiliaries.

17. iv. 02. 385 m.

Nymphon tenuimanum.

Body not so much as slender, the lateral processes are widely separated. The ocular tubercle is reduced to a trace, and there are no eyes. The legs are provided with extraordinarily long setæ on the first tibiæ, and to a less extent on the second and the femora. No auxiliary claws.

30. iii. 03. 330 m.

Nymphon exiguum.

Body comparatively stout, with widely separated lateral processes. Ocular tubercle placed well forwards and small; eyes well developed in some specimens.

The joints of the palps are as 3—5—1·3—4.

Propodus twice as long as tarsus. No auxiliary claws. A small species.

Various dates, in 385 m.

Nymphon fuscum.

Nymphon fuscum, Hoek, 'Challenger.'

Several specimens occur in the collection from Kerguelen Island.

This and its allies, *N. antarcticum* of Miers and *N. meridionalis* of Hoek, are very perplexing species. In *N. fuscum*

the range of variation is great, the ocular tubercle differs in most of the specimens, the length of the tarsus and propodus is variable even in the same individual, but the differences are not very great and the relations between the two joints are approximately preserved. The setose character of the limbs is accentuated in some specimens. On the whole, *N. antarcticum*, Miers, only differs in that the tarsus is distinctly longer than the propodus.

In *N. meridionale* I find it even more difficult to decide.

CHÆTONYMPHON.

Chætonymphon villosum.

Chætonymphon villosum, Hodgson, 'Discovery.'

This is a stoutly built species, with the lateral processes close together and long coarse setæ distributed over the body and especially on the tibia. The three terminal joints of the palps 6—2—3.

Specialized spines on the ovigers are few in number and have 5—7 teeth. The auxiliary claws are small but distinct, the propodus is longer than the tarsus.

31. xii. 02. 355 m.

One specimen.

Chætonymphon polare.

Another stoutly built species, with lateral processes distinctly separated and fringed with spines. Several spinous setæ fringing each segment.

Palps, three terminal joints as 6—2·75—3·5.

Oviger: specialized spines few, each with 5 or 6 lateral teeth.

Legs armed with spines arising from dermal papillæ.

Propodus shorter than tarsus, auxiliary claws small.

7—8. ii. 03. 350 m.

Chætonymphon longisetosum.

Body with narrowly separated lateral processes, imperfect segmentation, and long setæ.

Palp, three terminal joints 5—1·8—2·75.

Very long setæ on the principal joints of the leg, a very definite specific character.

Propodus longer than tarsus, auxiliary claws small.

14—16. vi. 1902. 385 m.

Chætonymphon typhlops.

Body stout and entirely clothed with fine, as well as coarse setæ; the latter are arranged in a linear manner on the limbs, for the most part on raised papillæ. There are no eyes, but the ocular tubercle exists as a short cone.

This species belongs to the group in which the tarsus is longer than the propodus.

Auxiliary claws are absent.

A few specimens were taken on 1. iii. 03 in 1207 m.

AUSTROPALLENE.

A genus established to include those forms which Möbius, Prof. Bouvier, and the present writer have included in different genera—*Pseudopallene*, *Cordylochele*. The presence of cephalic spurs is a most noticeable feature and is confined to all these southern species.

Body robust or slender, segmentation distinct, lateral processes close together or widely separated. Large and stout cephalic spurs. Eyes well developed. Proboscis tapering, with or without a setose wreath. Cheliferi stout, chelæ short and powerful. Palps no trace. Ovigera 10-jointed, without a terminal claw. In the male a distal swelling on the fifth joint.

No auxiliary claws.

Austropallene cornigera.

Pseudopallene cornigera, Möbius, Pycnogonida of the 'Valdivia' Expedition.

This species I consider to be identical with my *Pseudopallene australe*.

The 'Gauss' found several specimens in their winter-quarters.

Austropallene cristata.

Pseudopallene cristata, Bouvier, 'Pourquoi Pas.'

This species is readily distinguished from all others, even at a very early age, by the extraordinary development of papillæ on the legs, each bearing a spinous seta.

Several specimens at winter-quarters.

Austropallene spicata.

A readily distinguishable species, comparatively slender, with widely separated lateral processes bearing spurs distally,

and having a similar pair, but much larger ones, on the first coxæ; the second coxæ are extremely long. *A. brachyura*, Bouvier, is closely allied, but stouter; lateral processes closer together, and the neck is shorter.

Several specimens, winter-quarters.

Phoxichilidium australe.

The presence of a small process or spur on either side of the proboscis serves to distinguish this species.

A few specimens from winter-quarters.

Pallenopsis pilosa.

Phoxichilidium pilosum, Hoek, 'Challenger' Report.

This species, first described by Dr. Hoek, has since been found at various points in the antarctic regions by most of the recent expeditions.

Winter-quarters, 20. iii. 02.

Pallenopsis vanhoffeni.

This species is conspicuously setose, but readily distinguishable from the foregoing by the coarseness of the setæ. The cephalic segment is longer than the two following. The abdomen is shorter than the first segment and clavate, with a group of long setæ.

Three specimens, winter-quarters, 7. ii. 03 and 3. iv. 02.

Pallenopsis gaussiana.

This may fairly be called a conspicuously setose species, and the distinctive feature is the presence of a spine near the antero-lateral margin of the cephalon. Spines also occur on the lateral processes. The abdomen is longer than the first segment. The legs are clothed with long coarse setæ, but these vary greatly in length.

7. iv. 02.

Pallenopsis meridionalis.

Body with widely separated lateral processes, which, with the first coxæ, bear small spines. Segmentation fairly distinct. Long, coarse, and curved setæ are scattered along the legs, chiefly dorsally.

Winter-quarters, 7. iv. 02.

Pallenopsis setigera.

Another conspicuously setose species. Body stout, segmentation indistinct, spines on lateral processes, limbs coarsely setose, with a series of stout spines on the propodus; terminal claw powerful, with strong auxiliaries. Ovipiger club-shaped. Seven joints existing.

Winter-quarters, 7. iv. 02.

Pallenopsis spicata.

Not conspicuously setose. Body slender, scarcely so much as widely separated lateral processes. Three doubly pointed tubercles in the mid-dorsal line; tubercles also occur on the lateral processes and the first coxæ. Ovipiger club-shaped. Seven joints existing.

With regard to the ovigers, these last two species are peculiar.

Winter-quarters, 8. xii. 02.

AMMOTHEA.

This genus now has a different character to that formerly recognized. Dr. J. C. C. Loman has called attention to the type-specimen of Leach now preserved in the British Museum, *A. carolinensis*. This species becomes the type of the genus, and, if bodily form means anything, those diminutive species with a discoid body must be transferred elsewhere.

Ammothea is now that which in my 'Discovery' Report I described as *Leionymphon*, with subsequent additions.

Ammothea glacialis.

Leionymphon glaciale, Hodgson, 'Discovery.'

A single adult female.

26. vii. 02. 385 m.

Ammothea meridionalis.

Body short, with lateral processes close together and lightly tuberculated. Transverse ridges produced in the mid-dorsal line into conspicuous points. Entire body clothed with numerous short stiff setæ; the largest, those on the limbs, are arranged linearly, and the dorsal rows are large on the three principal joints.

Terminal claw long and the auxiliaries more than half the size.

Winter-quarters, 28. xi. 02. 385 m.

ACHELIA.

This genus has been restored from oblivion to include those forms with a discoid body, a more or less imperfect segmentation, with short and stout legs, hitherto included in *Ammothea*.

Achelia megacephala.

Body discoid, smooth. Abdomen very long and cephalon broad. Ocular tubercle stout, erect, with well-developed eyes.

Winter-quarters, two specimens.

AUSTROTHEA.

A new genus designed for those Ammotheid species whose body is not discoid in any sense of the term, and is without the transverse ridges so characteristic of *Ammothea* in its new signification; also the comparatively long legs is a further character of importance.

Austrothea spicata.

Body stout, divergent lateral processes, the proboscis ovate, slender, and the abdomen nearly as long. Ocular tubercle tall, terminating in a long spike.

8. ii. 03. 380 m.

A single specimen only.

Austrothea germanica.

Insignificant spurs on the lateral processes and more conspicuous ones on the first coxæ. Ocular tubercle elongate, pointed, and directed forwards.

16. vi. 02. 385 m.

A single specimen only.

Austrodecus glaciale.

Austrodecus glaciale, Hodgson, 'Discovery.'

A large number of specimens of this species were taken throughout the stay of the 'Gauss' in winter-quarters.

Austroraptus polaris.

Austroraptus polaris, Hodgson, 'Discovery.'

Described from two specimens from the Ross Sea, it now turns up off Kaiser Wilhelm's Land.

10. ii. 02. 385 m.

Tanystylum stylicherum.

Nymphon stylicherum, Miers, Ann. & Mag. Nat. Hist. (4) xvi. (1875).
Tanystylum stylicherum, Miers, Phil. Trans. vol. 168 (1879).

A number from Kerguelen Island.

Rhynchothorax australis.

Rhynchothorax australis, Hodgson, 'Discovery.'

Described by me from a single specimen taken by the 'Discovery' in the Murdo Sound. A very large number were taken by the 'Gauss' throughout its stay in winter-quarters. These reveal the fact that the close approximation of the origin of the lateral processes is simply a sexual matter; in the males they are almost, if not quite, widely separated. From the number obtained it is not a little surprising that none of them carry any eggs or young.

Pycnogonum gaini.

Pycnogonum gaini, Bouvier, 'Pourquoi Pas.'

Of this fine species three adult specimens occur in the 'Gauss' collection, together with a number of postlarval forms.

Its specific character is the existence of four mid-dorsal tubercles, three of them the exaggerated apices of as many transverse ridges and tubercles on the lateral processes.

Winter-quarters.

Besides the foregoing antarctic species, the two following were obtained by the 'Gauss' in temperate or tropical climes:—

Tanystylum paulovenssis.

Body discoid, smooth; proboscis very stout, tapering, and nearly as long as body.

Cheliferi reduced to two minute spinose stumps.

St. Paul Island; two specimens.

Anoplodactylus maritimus.

Lateral processes scarcely so much as widely separated. Abdomen short and directed upwards. Ocular tubercle truncate; eyes well developed. Leg: femur the longest joint, the second tibia a little shorter, and the first still shorter—differences small.

Sargasso Sea; a few specimens.

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IX.—*On the Swamp-Rats (Otomyes) of East Africa.*
By GUY DOLLMAN.

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IN the following revision of the East-African swamp-rats it has been found necessary to modify considerably the arrangement adopted by Wroughton in his 1906 paper*. The forms *tropicalis*, *nyikæ*, *angoniensis*, *orestes*, and *denti* are here raised to full specific rank, *tropicalis* taking the place of *irroratus*, which species, on account of its cranial structure and lamina formula, is not considered a near enough relative for the name to be used in connection with the East-African forms; in this manner we confine *irroratus* and its subspecies to the country south of the Zambesi. As subspecies of *tropicalis* we then have *elgonis* and two new forms from the Jombeni Hills and Mt. Nyiro. In this paper descriptions are given of seven new *Otomys*, all from British East Africa and Uganda.

Key to the Species and Subspecies.

- A. Lower incisors with one deep groove.
Ventral surface of tail dark.
a. m^3 with 5 laminae. (Ruwenzori East.) (1) *denti*, Thos.

* *Ann. & Mag. Nat. Hist. (7)* vol. xviii. p. 264 (1906).