

A New Genus of Pseudogarypin Pseudoscorpions Possessing Pleural Plates

By

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PLATES V, VI

I have been able to study this interesting new pseudoscorpion through the kindness of Professor V. V. Hickman, who made available a number of specimens he had collected near Launceston in 1931. All the specimens had been preserved in methylated spirits. They were boiled in 10 per cent KOH solution, and after clearing were mounted in Canada balsam. I find that this material consists of only one species and requires the establishment of a new genus. This genus belongs to the family Pseudogarypidae of the superfamily Feaelloidea. This superfamily as defined by Chamberlin (1931, p. 230) includes forms with 'either carapacial alae or abdominal pleural plates'. I propose to alter this to include forms with 'either carapacial alae, abdominal pleural plates, *or both*'. I also propose to alter Chamberlin's definition of the family Pseudogarypidae (1931, p. 230), which includes only those forms in which 'abdominal pleural plates are absent', to include forms in which 'abdominal pleural plates are *either absent or present*'.

Neopseudogarypus gen. nov.

With the characters of the family (*viz.*, venom apparatus absent; lamina exterior absent; four prominent eyes; cucullus broad, well developed and strongly lobate; femoral articulation of all legs freely mobile and of similar structure (homofemorate); legs I and II similar superficially to III and IV. Anus ventral and, together with the minute anal (12th) segment, surrounded by a large sclerotic plate composed of the fused 11th tergite and sternite. Abdomen ovate and much broader than the cephalothorax; pedipalpi of the normal prehensile type; without a ginglymous articulation between the cephalothorax and abdomen such as occurs in the Feaellidae). Carapacial alae and three rows of abdominal pleural plates are present. Pseudocoxal spines on the coxae of the first pair of legs. Posterior pair of eyes are covered above by a sclerotised roof. A pair of accessory setae at the end of the fixed finger of chela. The serrula exterior is free for a short distance at distal end. Genital plates are not divided.

Genotype. *Neopseudogarypus scutellatus* gen. et. sp. nov.

Neopseudogarypus scutellatus gen. et. sp. nov.

(Plates V, VI, figs 1-20)

Professor Hickman informs me that all the specimens of this pseudoscorpion were found only on the undersurface of stones, and collected on the line of hills extending from Glen Dhu to Trevallyn, near Launceston, Tasmania.

The following description is based on three specimens: the holotype (female) and two paratypes (a male and a female).

Measurements. All the following measurements are in millimetres, and Chamberlin's method has been followed (1931, p. 24). Length always precedes breadth, and measurements of the segments of the palpi and legs are given in the order, trochanter (without pedicel), basifemur, telofemur, tibia and tarsus.

Holotype (Female)

Length 2.59. *Breadth of Abdomen (6th segment)* 1.824. *Carapace* (0.608-0.418), *Cucullus* 0.170, *Ocular breadth* 0.361.

Palpus—(0.228-0.27), (1.054-0.25), (0.456-0.209), *chela* (1.425), *hand* (0.513-depth 0.325), *fingers* (0.912 fixed, 0.890 movable).

Leg I—(0.143-0.150), (0.304-0.114), (0.290-0.114), (0.247-0.095), (0.46-0.06).

Leg IV—(0.290-0.165), (0.237-0.120), (0.437-0.155), (0.437-0.095), (0.650-0.06).

Chelicera—0.258, *depth* 0.137, *mov. finger* 0.109.

Maxilla—0.570, *al.* 0.44, *b.* 0.210, *ab.* 0.37.

Paratype (Male)

Length 2.415. *Breadth of Abdomen (6th segment)* 1.653. *Carapace* (0.589-0.380), *Cucullus* 0.152, *Ocular breadth* 0.325.

Palpus—(0.209-0.247), (1.007-0.22), (0.415-0.209), *chela* (1.311), *hand* (0.494-0.285 *depth*), *mov. finger* (0.817).

Leg I—(0.140-0.135), (0.255-0.11), (0.266-0.114), (0.228-0.090), (0.440-0.057).

Leg IV—(0.266-0.133), (0.230-0.115), (0.380-0.133), (0.418-0.085), (0.608-0.057).

Chelicera—0.246, *depth* 0.129, *mov. finger* 0.104.

Maxilla—0.532, *al.* 0.399, *b.* 0.209, *ab.* 0.325.

The colour of the preserved specimens is yellowish brown. The carapace (Plate V, figs 1 and 9) is much longer than broad, narrower than the abdomen. There is a slight trace of a median longitudinal furrow, as an elevated ridge runs along each side, and the space between these ridges is concave anteriorly. Each lower antero-lateral angle of the carapace is prolonged into a horn which arises from under the eye tubercles, and extends forward until almost in a line with the anterior median part of the carapace. The horns are not deeply separated from the central lobe, and are in this respect similar to those of *Pseudogarypus banksi* Jacot (1938). The anterior end of the carapace is folded under (fig. 10) and there is on this part a median longitudinal ridge. There is a trace of the posterior suture, which is situated almost at the posterior border of the carapace. There are two pairs of prominent eyes (plate V, fig. 4), the anterior pair looking antero-laterally, the posterior pair looking postero-laterally. The two eyes on each side are separated by less than an ocular diameter. The anterior eyes are on a very slight projection, but the posterior pair are borne on prominent tubercles. The posterior eyes are covered above by the sclerotised roof of the tubercle. Closely associated with the eyes are two lyrifissures. The carapacial alae are wing-shaped, beginning just behind and below the posterior eyes. The posterior rounded ends of the alae extend back almost until in line with the posterior margin of the coxae of the 3rd legs (Plate V, fig. 3). The surface of the alae is particularly rugose.

The coxal area is shown in Plate V, fig. 2, and is very similar to that of *Pseudogarypus*. Pseudocoxal spines (fig. 8) are present in the triangular posterior portion of the coxae of the first pair of legs. (In the holotype there are seven on each coxa.)

Between the abdomen and the carapace on the dorsal surface is a well-marked membranous area (figs 1 and 9). The abdomen is broad, narrower at the anterior end than the posterior end, broadest at the sixth segment. There are ten visible tergites in a dorsal view (Plate V, fig. 1), and of these the first eight are divided, and the ninth partly so, by a distinct membranous area. The tenth tergite is entire. The first two tergites lie between the carapacial alae. Measuring from the anterior to the posterior edge, the first tergite has the smallest, and the second the largest dimension. The tergites bare numerous minute setae. The arrangement of the lyrifissures is shown in Plate V, fig. 1, and will probably be typical of the genus. Although slight variations occur, the arrangement of one lyrifissure near the inner border and a group of two or three near the outer border for a half tergite is typical. The tergites (as is almost the whole surface of the chitinised parts) are marked in a reticulate pattern. The eleventh tergite is fused with the eleventh sternite and surrounds the minute anal (12th) segment. The ventral segmentation is as is usual for the family, the second (? or first) sternite being absent. The genital plates are entire, but the fourth to tenth sternites are divided by a membranous area. The fourth sternite is very narrow, and the anterior part of it is heavily rugose. The arrangement of the lyrifissures is shown in Plate V, fig. 2, and the genital plates with chaetotaxy and lyrifissures for both sexes in Plate V, figs 5 and 6. The genitalia of the male appear to be the same as figured for *Cerogarypus agassizi* Jacot (= *Pseudogarypus bicornis* Chamberlin 1923, Plate 5, fig. 14), except that there are only three setae on the crescent-shaped sclerites.

The pleural membrane and inter-tergal spaces are marked by wavy striations. The pleural membrane (Plate V, figs 3 and 7) is raised into three folds, and in each of these folds is a row of chitinised plates. It is interesting to note that the carapacial alae reach behind to beneath the second tergite. Corresponding to the remaining eight free tergites (the eleventh tergite and sternite are fused) there are eight sclerotised plates in the top row. Parallel to each carapacial ala there is a long chitinised area. Although this appears to suggest a correlation between these plates and the tergites, it may be purely coincidental.

The Chelicera. In a dorsal view the carapace hides all but the fingers. The hand is stout, and the outer and dorsal surfaces of it are roughly reticulated. The flagellum (Plate VI, fig. 17; *fl.*) is typical of the family—i.e., a pair of long, slender, simple setae curved distally. The other setae are also shown, but I am not sure of the homologies of these. The seta near the exterior condylar lyrifissure seems to be the 'exterior seta'. The galeal seta (*g/ls.*) and what appears to correspond to the laminal seta (*ls.*) are shown in Plate VI, fig. 18. The four lyrifissures are also shown in Plate VI, figs 17, 18. The serrula exterior consists of about 17 teeth. The distal part is free for a short distance (Plate VI, figs 17 and 19) and is produced into a 'beak'. The lamina interior is difficult to make out, but appears to be of a broad plate-like type. Near the apical tooth of the movable finger on the outer side is a second, smaller tooth. The galea is simple and like that of other members of the family (Plate VI, figs 17 and 19).

Pedipalpus. The coxa (maxilla) is very large, and is similar to that of *Pseudogarypus*. The central elliptical lyrifissure is very small. The shape of the palpus is shown in Plate VI, fig. 13. The chela is raptorial, with slender fingers,

both of which (especially the fixed finger) are gracefully curved (Plate VI, fig. 15). The chaetotaxy is also shown in fig. 15: *t* is about 1/5 the length of the finger from the tip and is much closer to *st* than *st* is to *sb* (*tip-t*, 0.18 mm.; *t-st*, 0.076 mm.; *st-sb*, 0.164 mm.; *sb-b*, 0.098 mm.). On the fixed finger *it* is about 1/5 the length of the finger from the tip, and twice as far from the tip as *et*; *ist* is about 1/2 way along the finger, and *est* is about 2.5 areolar diameters distal to *it*; *eb* and *esb* are separated by about 8 areolar diameters; *eb* is a little more than 1/4 of the finger length from the base of the finger; *isb* is a little more proximal than *esb*; *ib* is at almost the same level as *eb*.

Near the end of the fixed finger is a pair of accessory setae (Plate VI, fig. 14, *xs*) not so well developed as the regular tactile setae, and very similar to the condition found near the finger tip of some of the Heterosphyronida. Just proximal to the accessory setae on the fixed finger on the external surface is what appears to be a sensory spot. There is also one of these spots on the movable finger at about the same distance from the tip (Plate VI, fig. 14, *s*). The first two teeth at the end of the movable finger are rather small and close together (Plate VI, fig. 14*b*). On the fixed finger between the first and second normal teeth, and higher up on the inner surface is a small accessory tooth. The rest of the teeth are prominent, peg-like, not contiguous basally and are evenly spaced, 38 on the fixed, and 27 on the movable finger of the holotype.

The Legs. These are similar to those of *Pseudogarypus*, and are figured in (Plate VI, fig. 20). The surface of the legs is marked by the reticulated pattern. Two pairs. The femoral articulations of all the legs are freely mobile. The tarsus consists of a single, relatively long segment. The claws and arolium are shown (Plate VI, fig. 20). The surface of the legs is marked by the reticulated pattern.

Remarks. It is most interesting to record from Tasmania a representative of the rare and unusual family Pseudogarypidae. Hitherto only two genera consisting of four species (*Pseudogarypus* (three species) and *Cerogarypus* (one species)) have been described—all from the United States of America. (Two fossil forms from Baltic amber have also been placed in this family (1937)). *Neopseudogarypus* therefore forms yet another link between Tasmania and the Americas.

Another feature is the possession of pleural plates. It is interesting to note that, hitherto, pleural plates have been described only in the aberrant, but related, family Feaellidae, but I am not sure that these plates are the same as in *Feaella*. I have already pointed out the possible correlation between the upper row of plates and the tergites, and the long, narrow plate parallel to the carapacial ala.

The serrula exterior is also interesting in that the distal end is free for a short distance, and in the possession of a forward projecting 'beak' (cf. *Feaella*).

Neopseudogarypus has more in common with *Pseudogarypus* than with *Cerogarypus*—both possess pseudocoxal spines; have a roof over the posterior eyes; in *P. banksi* the antero-lateral lobes of the carapace are broadly connected to the central lobe, and the positions of the tactile setae on the chela, including the accessory setae in *P. bicornis*, are similar to those of *Neopseudogarypus* (1946).

The holotype and two paratypes mentioned in this paper are to be deposited in the British Museum, and homotypes in the Australian Museum, American Museum of Natural History and the Muséum National d'Histoire Naturelle, Paris.

I wish to thank Mr. Clarke, Librarian at the University of Tasmania, and Miss Taylor at the Royal Society Library for obtaining papers for me. I also wish especially to thank Professor V. V. Hickman, not only for providing the material for study, but also for his kind and most helpful assistance.

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PLATE V

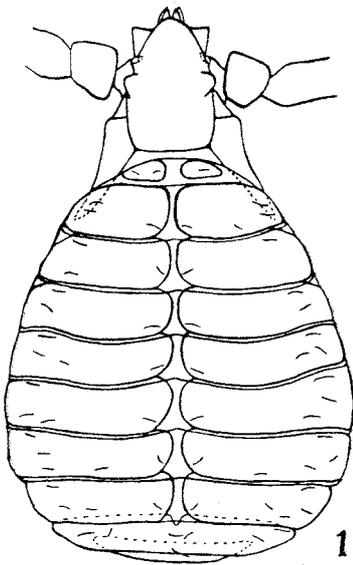
(All measurements are in millimetres.)

- FIG. 1.—Dorsal surface without legs. Lyrifissures are shown.
- FIG. 2.—Ventral surface with chelicerae and the left first and fourth legs dissected off. Lyrifissures are shown.
- FIG. 3.—Side view, without pedipalpi and legs, showing arrangement of pleural plates.
- FIG. 4.—Eye region.
- FIG. 5.—Female genital plates with chaetotaxy.
- FIG. 6.—Male genital plates with chaetotaxy.
- FIG. 7.—Enlarged view of anterior part of pleural membrane of left side, showing pleural plates and folds. *c.a.*, carapacial ala.
- FIG. 8.—Coxae of first pair of legs, showing pseudocoxal spines.

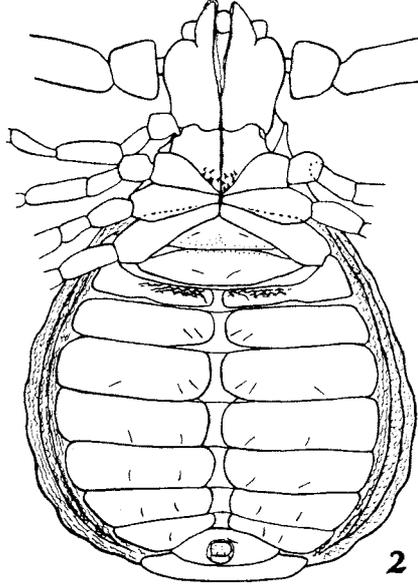
PLATE VI

(All measurements are in millimetres.)

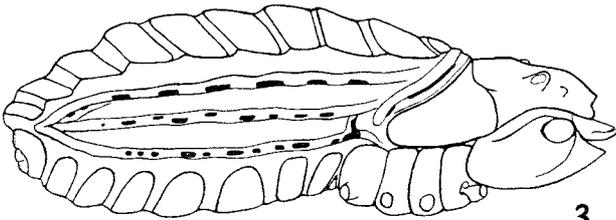
- FIG. 9.—Dorsal view of carapace and carapacial alae, showing typical reticulation of portions.
- FIG. 10.—Ventral view of anterior end of carapace.
- FIG. 11.—Fourth left leg.
- FIG. 12.—First left leg.
- FIG. 13.—Ventral view of left pedipalpus.
- FIG. 14.—End of (*a*) fixed finger, and (*b*) movable fingers. *a.s.*, accessory tactile setae; *s.*, sensory spots.
- FIG. 15.—External view of right chela, showing chaetotaxy and dentition.
- FIG. 16.—View of dorsal edge of left chelicera.
- FIG. 17.—Ventero-lateral view of right chelicera. *fl.*, flagellum; *i.c.l.*, internal condylar lyrifissure; *i.l.*, internal lyrifissure.
- FIG. 18.—Dorso-lateral view of right chelicera. *e.c.l.*, external condylar lyrifissure; *e.l.*, external lyrifissure; *gls.*, galeal seta; *l.s.*, laminal seta.
- FIG. 19.—Movable finger, showing galea and serrula exterior.
- FIG. 20.—Ventral view of tarsus, showing claws and transparent arolium.



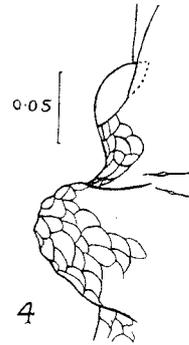
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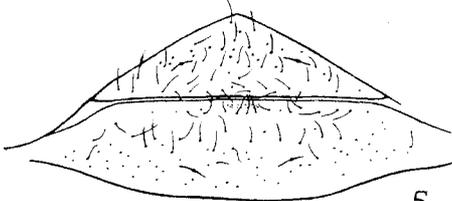
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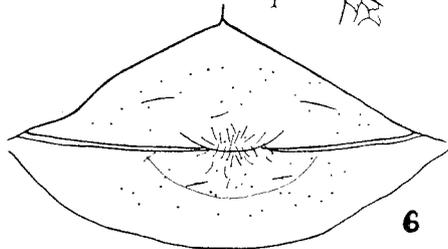
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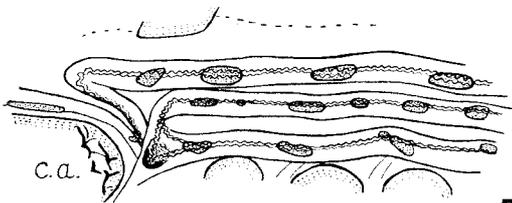
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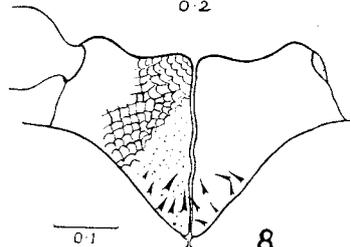
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0.05



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