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THE MYRIAPODA IN THE AUSTRALIAN MUSEUM.

PART I.—CHILOPODA.

By H. W. BRÖLEMANN, Pau.

(Figs. 1-34).

Thanks to the kindness of the Trustees of the Australian Museum, I have been permitted to examine the Myriapods existing in the cabinets of the Museum, and for such favour I wish to express my sincerest thanks to whom it is due.

The material submitted for examination is small, but would certainly assume an importance adequate to the rank of the branch amongst the Arthropoda, should attention be drawn to these highly interesting animals, and should some means of identifying the species be offered to lovers of Nature.

A plain list of names and localities would not have answered the purpose; the diagnoses are distributed through many different periodicals and are difficult to obtain without considerable loss of time. It has, therefore, been considered a better plan to add to the observations furnished by the material of the Museum, full descriptions borrowed from the more recent authors and as complete synonymical indications as possible. Thus, students will have close at hand material for comparison as well as the necessary particulars for identification.

May this attempt to win sympathies to the cause of the much disregarded Myriapods meet with some success.

CHILOPODA ANAMORPHA.

SCUTIGEROMORPHA.

Genus ALLOTHEREUA, *Verhoeff*, 1905.

ALLOTHEREUA MACULATA (*Newport*), 1844.

(Figs. 1-4).

Cermatia maculata, Newport, Ann. Mag. Nat. Hist., 1844, xiii; Trans. Linn. Soc., 1845, xix.

Cermatia maculata, Newport and Gray, Cat. Myr. Brit. Mus., 1856.

- Cermatia australiana*, Newport, *Loc. cit.*, 1844.
 „ „ Newport and Gray, *Loc. cit.*, 1856.
Scutigera australiana, Gervais in Walckenaer, *Hist. Nat. Ins. Apt.*, 1847.
Scutigera maculata, Gervais, *Loc. cit.*, 1847.
 „ „ Meinert, *Vid. Meddel. Naturhist. For.* 1884, 1884-1886.
Scutigera maculata, Haase, *Ber. K. Zool. Mus. Dresden*, 1887, 1886-1887.
Scutigera maculata, Pocock, *Ann. Mag. Nat. Hist.*, 1901, (7), viii.
Scutigera Smithii, Haacke, *Zool. Garten*, 1886, xxvii (*nec Newport*).
Cermatia Latreillei, Newport, *Loc. cit.*, 1844.
Thereuonema maculata, Verhoeff, *Ges. Nat. Freunde Berlin*, 1904.
Allothereua maculata, Verhoeff, *Zool. Anz.*, 1905, xxix.

Haase, 1887, has given the following description:—

“Robust, von vorne nach der Mitte wenig verbreitet, nach hinten zu mit Ausnahme der zwei letzten Segmente nicht verschmälert. Farbe hell, schön grünlich weiss, der Kopf mit einem blaugrünen Mittel fleck und solchen Seiten; Rückenplatten fast ganz blaugrün, mit Ausnahme der stets weissen Stomasättel; die obere Hälfte des Aussenrandes, sowie jederseits ein unregelmässiger, von grünblauen Flecken unterbrochener, sich von den Sätteln zum Vorderrand der Schilde hinziehender Raum bleiben hell grünlich weiss. Die dunkle Mittelbinde hat einen Stich in's Rostrothe. Auf den hinteren Rückenplatten werden der Seitenrand und die Mittelbinde dunkler, stets jedoch liegt das Stomaloeh in hellem Felde. Bauchschilde schmutzig lehmbraun, hellgrün durchscheinend, besonders an den Rändern dicht rostroth behaart; Weichenfalten blaugrün eingefasst. Hüften bläulich pigmentirt, rostroth beborstet; Oberschenkel hellgrün, nur vor der Spitze dunkelblau geringelt. Tibia nur am distalen Ende hellgrün, in der Mitte blaugrün, sonst dunkelblau (mit 2 blauen Ringen), ebenso das erste Tarsenglied. Von den Metatarsalien ist das erste Glied grünlich, die andern hell rostroth mit dunklen Einschnitten. Kopf überall rostroth behaart. Vom Innen-

winkel der Augen aus gehen nach innen sehr deutlich die an Rande dicht und lang bedornen, schwärzlich gefärbten, weit vorspringenden Hörner der Stirnnaht, die durch einen queren, ziemlich stumpfen Winkel vereinigt werden. Der verlängerte Mitteleindruck wird vorn zwischen den Fühlern durch zwei sich schief kreuzende quere begrenzt und Verläuft vor dem Hinterrand der Augen in einer hinten verschmälerten, flachen und breiten, den stark aufgebogenen, bedornen Hinterrand des Kopfschildes nicht erreichenden Vertiefung. Fühler rostroth, $1\frac{1}{2}$ mal so lang als der Leib, oft nur eine 15 mm. vom Kopf entfernte Knickung, bis zu der 130-140 Ringel vorkommen. Am Endgliede stehen kurze, schnell zugespitzte Sinnesäpfchen. Maxillarorgan unentwickelt. Giftklaue unten dicht bebürstet. Basalplatte in der Tiefe liegend. Vorderrand der ersten Stomaplatten stark und schmal nach oben abgesetzt, mit starren, nach hinten gerichteten Dornen bewehrt. Stomaplatten von der Seite gesehen mit gelbem sammetartigen Glanz, der von einer sehr grossen Menge feiner, nach hinten zurückgelegter und ganz flachanliegender, auf länglichen Warzen stehender Stachelchen herkommt. Am Rande kurze schwarzbraune Dornen und darunter doppelt so lange rostgelbe Haare. Die feine gelbe Behaarung lässt auf den Schilden besonders ausserhalb des hellen Raumes jederseits der Mittelbinde einzelne, meist apfelgrüne, seidenglanzende Stellen frei. Bedornung unregelmässig, Dornen oft gekrümmt, meist zu 2 oder 3. Hinterrand der letzten Stomaplatten flach, mit zahlreichen Dörnchen besetzt; letzte Rückenplatte hinten stark verschmälert und gerundet, löffelartig vertieft, mit nach oben aufgebogenem Rande; dieser mit zwei Reihen starker Dörnchen und Borsten besetzt. Hüften wie die Bauchschilde rostgelb behaart. Tibia oben und unten dicht und stark rothbraun bedornt, dazwischen rostgelb behaart; Metatarsalien unten mit nach hinten gerichteten Haaren besetzt."

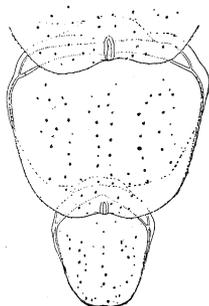


Fig. 1. *A. maculata*, Newport. 6th, 7th, and 8th terga.

Verhoeff, 1904-05, has drawn attention to the ornaments of the tergal sclerites of the Scutigerae as well as to the distribution of spurs and spines on the different joints of the legs, and on their systematic value. The same author adds some particulars which are not reproduced here as these agree with the observations recorded above (Fig. 1).

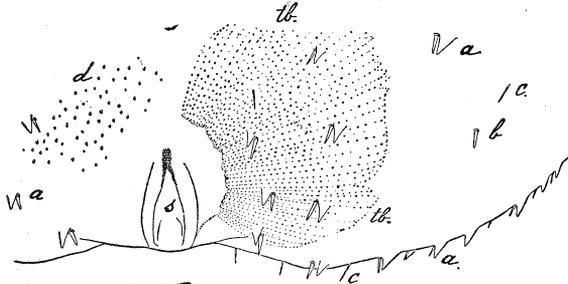


Fig. 2. *A. maculata*, Newport. Posterior margin of the 7th leg, enlarged.

Fig. 2 shows the setæ, setules and spines to be found on the terga of *A. maculata*, as well as the remarkable association of spines coupled with spinules which according to Verhoeff (Figs. 2 and 3) is one of the main characters of the genus.

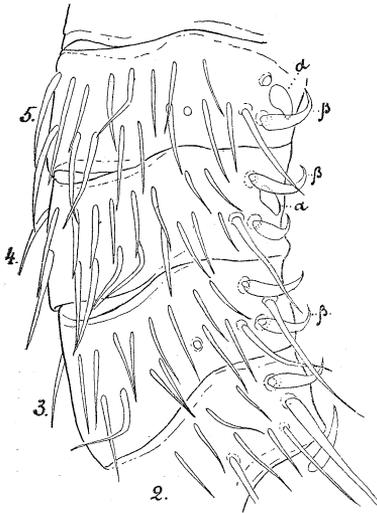


Fig. 4. *A. maculata*, Newport. Four penultimate rings of tarsus of 10th pair; A, the so-called "tarsal-zapfen"; B, hooked bristles.

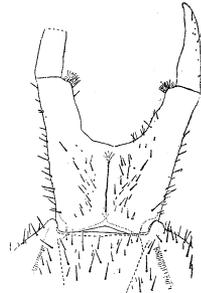


Fig. 3. *A. maculata*, Newport, ♀ appendages.

Femora, patella and tibia are the only joints provided with spurs, thus:—

Femora:—Leg 1: 1 dorsal median; 1 ventral median.

Leg 2-14: 1 dorsal median and 1 dorsal posterior; 1 ventral median.

Leg 15: 1 dorsal median; 1 ventral median.

Patella :—On all legs : 1 anterior ; 1 dorsal median ; 1 posterior.
The ventral surface is destitute of spurs, but bears two spines which are the tip-spines of the ventral-anterior and ventral-posterior row of spines of this joint (Fig. 4).

Tibia :—Leg 1 : 0 dorsal ; 1 ventral median and 1 ventral posterior (the latter may be missing occasionally).

Legs 2–14 : 1 dorsal median ; 1 ventral median and 1 ventral posterior.

Leg 15: 1 dorsal median ; 0 ventral.

The following table shows the number of rings of the protarsus and of the tarsus of each leg :—

	Protarsus.	Tarsus.	Remarks.
Leg 1	14–13	34–33	
2	12–13	33–33	
3	11–11	31–31	
4	10–11	29–32	
5	9–9	29–30	
6	9–9	29–28	
7	9–8	28–.	
8	8–.	29–.	left leg missing.
9	..	..	both legs missing.
10	..8	..29	right leg missing.
11	8–.	29 (at least)	left leg missing.
12	..8	..31	right leg missing.
13	9–8	34–33	
14	..8	..36	right leg missing.
15	—over 300—		right leg missing, left truncate.

On another specimen with anal legs broken at the tip, over three hundred rings could be numbered. It may be that this figure is far from the true number of rings as, towards the end, these grow smaller, less distinct and very irregular, so as to render it a difficult task to distinguish them from one another.

Spines are to be found on the femora, the patella, the tibia and the protarsus. They begin to appear on :—

the femora from the 4th pair of legs.
the patella from the 4th or 5th pair of legs.
the tibia from the 6th pair of legs.
the protarsus from the 5th or 7th pair of legs, as per adjoined table :—

Leg.	Femora.					Patella.					Tibia.					Protarsus.								
	Dorsal.	Anterior.	Ventral.	Posterior.	Distal.	Dorsal.	Anterior.	Ventral.	Posterior.	Distal.	Dorsal.	Anterior.	Ventral.	Posterior.	Distal.	Ring i.	ii.	iii.	iv.	v.	vi.	vii.		
4	5	2/1	...	...	3/2	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	6	1	...	...	2	9/10	...	...	...	...	...	1	2	...	...	...	...	...	...	...
6	7/8	3/2	...	...	4/2	10/14	...	...	...	4/5	...	1	1	1	...	...	...	...	...	...
7	...	4	...	8/6	3/7	...	...	3/2	10/16	1	2	3	8/10	...	2	1	2/1	...	...	...	...	...	...
8	...	5	...	8	5	1	...	5	14	...	7	6	14	...	1	1	2	2	2	2	...	...	...
9
10	..	15	8	4	6	6	4	5	25	...	20	19	...	18	...	10	3	2	2	1	...	...	...
11	.	20	14	1	7	13	13	5	21	6	21	22	...	24	1	12	2	2	2	2	2	...	...
12	...	25	11	4	6	12	23	...	25	5	24	19	3	22	..	15	2	2	2	2	2	1	...	
13	...	21/40	13/12	3/5	7/8	15/13	22/28	12	16/28	7/5	21/26	22/24	4	23	2	15/17	5/3	3	3/2	2	2	2	1	
14	...	54	18	16	7	16	35	11	6	5	23	23	..	27	...	20	4	3	2	2	1	...	...

None of the antennæ were entirely preserved; the following are the numbers of rings observed in the best specimen:—

Right antenna:—Joint i, seventy-six rings; joint ii, two hundred and thirty-five rings; joint iii, broken after the one hundred and forty-second ring.

Left antenna:—Joint i, seventy-two rings; joint ii, one hundred and ninety-eight rings; joint iii, broken after the nineteenth ring.

An immature ♂ specimen furnished with two pairs of well-developed, single jointed styli, measured 12 mm. in length. The last terga showed the typical coupled spines but less numerous.

Most of the legs were broken off. On the remaining legs the spurs appeared to be disposed as in adults, except that the posterior spur of the patella was missing on the first left leg and that the ventral posterior spur of the tibia was not found to exist before the tenth right leg.

The number of rings of the protarsus and tarsus were the following:—

	Protarsus.	Tarsus.	Remarks.
Leg 1	12	25	right leg missing.
7	7	20	both legs 2—6 missing.
8	7	22	right leg missing.
10	7	23	left leg missing.
11	6—6	24—26	left leg missing.
12	7	25	left leg missing. both legs 13—15 missing.

No spines could be detected on the joints before the eighth leg. Legs eight to twelve were provided with spines as shown below:—

Leg.	Femora.				Patella.					Tibia.					Protarsus.
	Dorsal.	Anterior.	Ventral.	Posterior.	Dorsal.	Anterior.	Ventral.	Posterior.	Distal.	Dorsal.	Anterior.	Ventral.	Posterior.	Distal.	
8	2	5	...	} No spines.
9	
10	5	...	...	8	...	12	6	...	10	...	
11	5	1	6/7	...	...	9/6	...	17/15	9/7	...	14/10	...	
12	3	...	11	3	...	9	...	16	14	...	15	...	

The antennæ were composed of a comparatively smaller number of rings:—

Right antenna:—Joint i, fifty-one rings; joint ii, ninety-six rings; joint iii, broken after the one hundred and fifty-fifth ring.

Left antenna:—Joint i, sixty-six rings; joints i. and iii., broken after the one hundred and sixtieth ring and showing no partition between joint ii and joint iii.

Amongst other characters of the group, Verhoeff, 1904, (*Loc. cit.*, p. 258) mentions the existence of so called "Tarsalzapfen." Fig. 4 drawn from the tenth pair of legs of the ♂ specimen, gives an idea of these minute organs (*a*). The next ying bristles (*β*) assume a peculiar shape, being thickened at the base and hooked at the apex.

Loc.—Bourke, N. S. Wales; five specimens, three adult ♀ and one immature ♂.

CHILOPODA EPIMORPHA.

SCOLOPENDROMORPHA.

Genus RHYSIDA, *Wood*, 1863.

RHYSIDA? (*longipes*, *Newport*, 1844).

It is not easy to decide whether this specimen belongs to Newport's species or to *R. subinermis*, Meinert, as both anal legs are missing.

Loc.—Condamine River, South-east Queensland; one specimen, July, 1898.

Genus ETHMOSTIGMUS, *Pocock*, 1898.

ETHMOSTIGMUS RUBRIPES, *Brandt*, 1840.

Scolopendra rubripes, *Brandt*, Bull. sc. Acad. Petersb., vii., 1840.

Scolopendra rubripes, *Gervais* in *Walckenaer*, Hist. Nat. Ins. Apt., 1847.

Scolopendra spinulosa, *Brandt*, *Loc. cit.*, 1840.

" *sulcidens*, *Newport*, Ann. Mag. Nat. Hist., xiii., 1844.

- Scolopendra squalidens*, Newport, *Loc. cit.*, 1844.
 „ „ Gray, List Myr. Brit. Mus., 1844.
Scolopendra squalidens, Gervais, *Loc. cit.*, 1847.
 „ *scabriventris*, Newport, *Loc. cit.*, 1844; Gray,
Loc. cit., 1844.
Scolopendra sulcicornis, Newport, *Loc. cit.*, 1844.
 „ *megacephala*, Newport, *Loc. cit.*, 1844.
 „ *rapax*, Gervais, *Loc. cit. (nec. Haase)*, 1847.
Heterostoma sulcidens, Newport, Trans. Linn. Soc., xix.,
 1845.
Heterostoma sulcidens, Gray, *Loc. cit.*, 1844; Gervais, *Loc. cit.*,
 1847.
Heterostoma sulcidens, Newport and Gray, Cat. Myr. Brit.
 Mus., 1856.
Heterostoma sulcidens, Kohlrausch, Arch. Naturg. Troschel,
 1881.
Heterostoma sulcicornis, Newport, *Loc. cit.*, 1845; Gray,
Loc. cit., 1844.
Heterostoma sulcicornis, Gervais, *Loc. cit.*, 1847; Newport
 and Gray, *Loc. cit.*, 1856.
Heterostoma flava, Newport, *Loc. cit.*, 1845; Gervais, *Loc.*
cit., 1847.
Heterostoma flava, Newport and Gray, *Loc. cit.*, 1856.
 „ *megacephala*, Newport, *Loc. cit.*, 1845; Gray,
Loc. cit., 1844.
Heterostoma megacephala, Gervais, *Loc. cit.*, 1847; Newport
 and Gray, *Loc. cit.*, 1856.
Heterostoma megacephala, Kohlrausch, *Loc. cit.*, 1881.
 „ *fasciata*, Newport, *Loc. cit.*, 1845; Gray, *Loc. cit.*,
 1844.
Heterostoma fasciata, Newport and Gray, *Loc. cit.*, 1856.
 „ *fasciatum*, Gervais, *Loc. cit.*, 1847; Meinert, Vid.
 Med. Nat. For., 1884.
Heterostoma crassipes, Silvestri, Ann. Mus. Civ. Genova,
 xxxiv., 1894.
Heterostoma rubripes, Haase, Ber. K. Zool. Mus. Dresden,
 1887, 1886-87.
Heterostoma rubripes, Daday, Term. Fuz., xii., 1889; *Ibid.*,
 xiv., 1891.

Heterostoma rubripes, Pocock, Ann. Mag. Nat. Hist. (6), xi., 1893.

Heterostoma rubripes, Silvestri, *Loc. cit.*, 1894.

„ „ Attems, Jena Denk., viii., 1898.

Ethmostigmus rubripes, Pocock, Ann. Mag. Nat. Hist. (7), viii., 1901.

Ethmostigmus rubripes, Kraepelin, Mit. Nat. Mus. Hamburg, xx., 1903.

Kraepelin, 1903, has given the following description of Brandt's species:—

“Fühler 20 gliederig, Glieder länger als breit. Rückenplatten vom 2 oder 3 Segment gefurcht, vom 6 oder 7 berandet, glatt. Sternocoxal platte mit 3, 3 Zähnen, Bauchplatten meist nur mit schwachen Andeutungen der Medialfurchen in Gestalt flacher Beulen in den mittleren Segmenten; letzte mit Medianfurchen, am Hinterrande tief bogig ausgerandet oder fast rechtwinklig ausgeschnitten. Pseudopleurenfortsatz kurz, die letzte Bauchplatte nicht oder kaum um deren Länge überragend, am Ende 2 spitzig, seitlich mit 2 starken Dornen, dorsal mit 3-5 auf dem bogig gewölbten Rücken in einer Linie stehenden Dörnchen. Beinpaare meist im 1-3 Segment mit 2 Tarsalsporen, 20 meist mit Tarsalsporn. Femur der Analbeine ventral aussen fast stets mit 3 Dornen (sehr selten 2), ventral innen ebenfalls 3 Dornen, Innenfläche und dorsal meist 4 in 2 Reihen gestellte Dornen, dazu Eckdorn. Färbung sehr variabel, dunkel braungrün bis orange gelb oder ockergelb mit grünen Hinterrändern der Segmente, &c, Beine gelb. Länge dis 115 mm.”

Some minor variations could be observed, such as:—margins of the terga starting on the fifth segment; three lateral spines on the coxal process of anal legs; two tarsal spurs on the legs of the fourth segment; but these variations are hardly worth mentioning. Not so is the fact that the four proximal joints of antennæ are naked.

Locs.—Penrith?; one specimen. Bourke and Wilcannia, Darling River floods. May-June 1890; one specimen, coxopleuræ and legs of fifteenth pair somewhat abnormal in shape and armature (individual abnormality): same locality; one specimen typical. Condamine River, July 1898; one specimen, full grown: same locality, one specimen not fully developed. Smithfield, N. S. Wales; one specimen. Solomon Islands; five specimens.

Genus CORMOCEPHALUS, Newport, 1844.

CORMOCEPHALUS AURANTIIPES, Newport, 1844.

- Scolopendra aurantiipes*, Newport, Ann. Mag. Nat. Hist., xiii., 1844.
- Scolopendra aurantiipes*, Gervais in Walckenaer, Hist. Nat. Ins. Apt., 1847.
- Scolopendra subminiata*, Newport, *Loc. cit.*, 1844; Gervais, *Loc. cit.*, 1847.
- Scolopendra obscura*, Gervais, *Loc. cit.* (nec. L. Koch), 1847.
- „ *puncticeps*, Gervais, *Loc. cit.*, 1847.
- Scolopendra brevis*, Gervais, *Loc. cit.*, 1847.
- „ *miniata*, Gervais, *Loc. cit.*, 1847.
- Cormocephalus miniatus*, Newport, Trans. Linn. Soc., xix., 1845.
- Cormocephalus miniatus*, Newport and Gray, Cat. Myr. Brit. Mus., 1856.
- Cormocephalus subminiatus*, Newport, *Loc. cit.*, 1845.
- „ „ Gray, List. Myr. Brit. Mus., 1844.
- Cormocephalus subminiatus*, Newport and Gray, *Loc. cit.*, 1856.
- Cormocephalus subminiatus*, Haase, Ber. K. Zool. Mus. Dresden, 1887, 1886-87.
- Cormocephalus obscurus*, Newport, *Loc. cit.*, 1845; Newport and Gray, *Loc. cit.*, 1856.
- Cormocephalus gracilis*, Kohlrausch, Inaug. Dissert. Marburg, 1878.
- Cormocephalus gracilis*, Kohlrausch, Arch. Naturg. Troschel, 1881.
- Cormocephalus pygomegas*, Kohlrausch, *Loc. cit.*, 1881.
- Rhombcephalus brevis*, Newport, *Loc. cit.*, 1845.
- Cormocephalus aurantiipes*, Newport, *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844; Newport and Gray, *Loc. cit.*, 1856; Kohlrausch, *Loc. cit.*, 1881.
- Cormocephalus aurantiipes*, Meinert, Vid. Meddel. Naturhist. For., 1884.
- Cormocephalus aurantiipes*, Meinert, Proc. Amer. Phil. Soc., xxiii., 1885.

Cormocephalus aurantiipes, Haase, *Loc. cit.*, 1887; Pocock, *Biol. Cent. Amer.*, 1895; *Ann. Mag. Nat. Hist.* (7), viii., 1901.

Cormocephalus aurantiipes, Kraepelin, *Mit. Nat. Mus. Hamburg*, xx., 1903.

Kraepelin, 1903, has redescribed Newport's species as follows:—

“Kopfplatte dicht punktirt, mit deutlichen Basalplatten in den Hinterecken und 2 nach vorn bis zur Mitte des Kopfes reichenden medialen Längsfurchen. Fühler 17 gliedrig, 6 Grundglieder glatt und glänzend. 1 Rückenplatte dicht punktiert; mediale Längsfurchen vom 2-20 Segment durchgehend entwickelt; Berandung vom 7 oder 8 (selten vom 9) Segment bis 20 segment; letzte Rückenplatte mit durchgehender Medianfurche, fein punktiert, am Hinterrande bogig vorgezogen wie bei den übrigen Arten. Sternocoxalplatte mehr oder weniger dicht punktiert, vorn meist mit Medianfurche, die nach hinten eine zarte, gewellte, meist wenigstens an den Seiten erkennbare Querfurche erreicht oder schneidet; Zahnplatten etwas breiter als lang, jede mit 4 Zähnen, von denen der äussere etwas mehr isolirt ist. Bauchplatten vom 2-20 Segment mit durchgehenden 2 Medialfurchen, fein punktiert; letzte nach hinten verjüngt, meist etwas länger als am Grunde breit, mit seichtem Medianeindruck, am Hinterrande flachbogig gerundet. 1 bis 20 Beinpaar mit Klauenspornen Pseudopleuren in einen ziemlich schlanken Kegel ausgezogen, am Ende 2 spitzig, am Hinterrande der Pseudopleuren kein Seitendorn. Femur der Analbeine etwa $2\frac{1}{4}$ - $2\frac{1}{2}$ mal so lang wie dick, ventral meist flach, oft mit gewulsteten Rändern, auf dem Aussenrande eine Längsreihe vom 3 starken Dornen; auf dem inneren Rande in der Grundhälfte 2 Dornen, auf der Innenfläche distal 1 Dorn, dorsal innen 2 Dornen, dazu ein starker, 2 spitziger Eckdorn; Endklauen gross, oft so lang wie der letzte Tarsus, mit starken Klauenspornen. Stigmen lang dreieckig bis schlitzförmig. Färbung gelbbraun bis schmutzig oliv, bei juv. auch dunkel oliv, Kopf und 1 Rückenplatte oft mehr gelbroth, auch das Endsegment nebst den Analbeinen oft heller; Hinterränder der Segmente zuweilen dunkler grün; Beine gelb, bei juv. zuweilen grünlich. Länge bis 100 mm.”

It is noteworthy that one of the Port Stephens specimens has no spines at the claw of the anal legs. The Parramatta specimen is quite young.

Locs.—Port Stephens, N. S. Wales; two specimens. Parramatta, N. S. Wales; one specimen.

CORMOCEPHALUS AURANTIIPES MARGINATUS,¹ Porat, 1876.

Cormocephalus marginatus, Porat, Bih. K. Svensk. Vet. Akad. Handl., iv., 1876.

Cormocephalus aurantiipes marginatus, Kraepelin, Mit. Nat. Mus. Hamburg, xx., 1903.

According to Kraepelin, 1903:—

“Der Hauptform durchaus gleichend, aber die letzte Rückenplatte ohne Medianfurche. Die Berandung der Rückenplatten beginnt bei den vorliegenden Stücken stets im 7 Segment. Die Rückenplatten sind fast immer grün berandet.”

Here also the margins on the terga begin with the seventh segment.

Loc.—Narrabri, N. S. Wales; one young specimen.

CORMOCEPHALUS BREVISPINATUS SULCATUS, *subsp. nov.*

(Fig. 5.)

Dark olive green; legs and antennæ paler; toxicognats rusty.

Length 76 mm.; breadth of first tergum 6.50 mm. of second, 6 mm. of sixteenth, 6.50 mm. of the twenty-first, 5.50 mm. (measurements taken on the largest specimen).

Head plate, first tergum and maxillipedes obsoletely punctured. Head plate of even length and breadth (4.50 mm.); anterior margin rounded; posterior margin angular with the apex engaged under the anterior margin of the first tergum. A pair of triangular, short, but transversely stretched plates² exist behind the posterior angles of the head. First tergum wide but without any furrow. The two usual median furrows are to be seen from the second tergum to the twentieth. The marginal furrows are distinct on the last five to eight terga, but scarcely

¹ The trinomial nomenclature is in accord with Dr. Brölemann's M.S. It is not used in the Australian Museum.

² Several authors call these plates “Basalplatten”, a name which does not seem appropriate. The so-called basal plate of Geophilids is the tergum of the maxillipedes; but since, in Scolopendrids, the latter is fused with the first dorsal tergum, it is likely that these plates lying in front of it belong to the last cephalic segment, viz. to the second pair of maxillæ. It is proposed therefore to call these plates “postcephalic”.

so on the two preceding terga. The last tergum is shorter than long (in the proportion of 4.5:5.0), with moderately produced and rounded posterior margin, and with a distinct median sulcus.

Antennæ 14 mm. in length, reaching at least as far back as the anterior margin of the fourth segment; 16-17 jointed, with the basal 7-9 joints naked.

Dental plates of maxillipedes as long as wide with four teeth, of which the three internal are more or less coalesced, the fourth standing apart. The anterior fourth of the coxosternum of the maxillipedes is sulcate in the middle, the sulcus meeting backwards a transverse sulcus more or less distinct, sometimes hardly visible, at any rate very irregular. Behind the middle a shallow impression is generally to be seen.

Sterna from the second to the twentieth with two entire longitudinal sulci. Last sternum hardly longer than wide at the base, truncate at the apex with sides converging. Another specimen has the last sternum rounded at the apex and provided behind the middle with a very large and deep circular impression, which has to be considered as abnormal.

Legs of the first pair slender. On all the legs the spines are wanting at the distal end of the first tarsal joint, but are present at the base of the claw. The

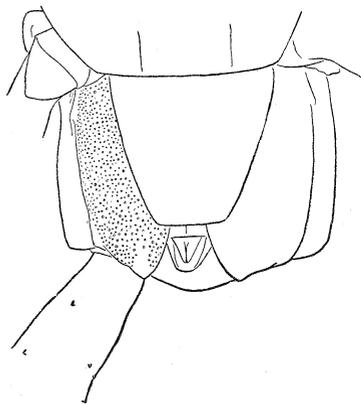


Fig. 5. *C. brevispinatus sulcatus*, Brölemann. Last leg bearing segment, ventral view.

posterior angle of the coxopleuræ of fifteenth pair is produced in a very small conical process, not longer than broad at the base, tipped with two tiny spines. Posterior margin armed laterally with a minute spine (Fig. 5). The porous area is wider than the pleural part, thrilled with minute pores and reaching the posterior margin of the coxæ, leaving untouched a short and narrow linear space in front of the process. Joints of the anal legs short and stout; the measurement of the first three joints give the following figures:—

Femora :	Length	4 mm. ;	breadth at the apex	2.25 mm.
Patella :	„	2.80 mm. ;	„	2 mm.
Tibia :	„	2.40 mm. ;	„	1.50 mm.

Femora armed with :—

- (2)-3 spines on the ventral-outer edge.
 2 „ on the middle of the ventral-inner edge.
 (1)-2 „ on the distal half of the inner surface.
 2 „ on the dorsal-inner edge, besides two more on the distal-inner end of the joint which is merely swollen and not produced as in other species. The claw is nearly as long as the preceding joint and is accompanied with thin spines.

There is no doubt that this form is nearly related to Koch's *C. brevispinatus*, but since the last tergum shows a median sulcus (which is deficient in the type), it is necessary to give it a new name.

Loc.—Bourke and Wilcannia, Darling River floods, May and June, 1890; seven specimens.

CORMOCEPHALUS WESTWOODI, *Newport*, 1844.

Scolopendra Westwoodii, *Newport*. *Ann. Mag. Nat. Hist.*, xiii., 1844.

Scolopendra Westwoodii, Gervais in Walckenaer, *Hist. Nat. Ins. Apt.*, 1847.

Scolopendra puncticeps, Gervais, *Loc. cit.*, ? 1847.

„ *polita*, Gervais, *Loc. cit.*, ? 1847.

Cormocephalus Westwoodii, *Newport*, *Trans. Linn. Soc.*, xix., 1845.

Cormocephalus Westwoodii, Gray, *List Myr. Brit. Mus.*, 1844.

Cormocephalus Westwoodii, *Newport and Gray*, *Cat. Myr. Brit. Mus.*, 1856.

Cormocephalus Westwoodii, Kohlrausch, *Arch. Naturg. Troschel*, 1881.

Cormocephalus Westwoodii, Haase, 1887, *Ber. K. Zool. Mus. Dresden*, 1886-87.

Cormocephalus Westwoodii, Silvestri, *Ann. Mus. Civ. Genova*, xxxiv., 1894.

Cormocephalus Westwoodii, Pocock, *Ann. Mag. Nat. Hist.* (7), viii., 1901.

Cormocephalus rugulosus, Porat, *Öfvers. K. Svensk. Akad. Handl.*, xxviii., 1871.

Cormocephalus rugulosus, Porat, *Ibid.* Bihang, iv., 1876.

Cormocephalus rugulosus, Meinert, 1884, Vid. Meddel. Naturh. For., 1884-8.

Cormocephalus lanatipes, Kohlrausch, Inaug. Dissert. Marburg, 1878.

Cormocephalus lanatipes, Kohlrausch, *Loc. cit.*, 1881.

Rhombcephalus politus, Newport, *Loc. cit.*, 1845; Newport and Gray, *Loc. cit.*, 1856.

Rhombcephalus politus, Kohlrausch, *Loc. cit.*, 1881.

Kraepelin's description, 1903, runs thus:—

“Kopfplatte zerstreut punktirt, mit deutlichen Basalplatten in den Hinterecken und 2 nach Vorn bis zur Mitte des Kopfes reichenden medialen Längsfurchen. Fühler 17 gliedrig, $6\frac{1}{2}$ bis 10 Grundglieder glatt und glänzend, nicht scharf von den behaarten Gliedern abgesetzt. Mediale Längsfurchen der Rückenplatten im 2 Segment beginnend; Berandung im 8 oder 9 Segment (selten schon im 7) beginnend; letzte Rückenplatte mit durchgehender Medianfurchen. Sternocoxalplatte zerstreut punktiert, ohne erkennbare gewellte Querfurchen im vorderen Drittel; Zahnplatten meist etwa so lang wie breit, jede mit 4 zähnen, von denen die 3 inneren etwas verschmolzen sind. Bauchplatten vom 2-20 Segment mit 2 durchgehenden Längsfurchen, ohne Mediagraben; letzte nach hinten sehr stark verjüngt, etwas länger als am Grunde breit, mit oder ohne schwache Mediandepression, am Hinterrande gestutzt, die Ecken kaum gerundet. 1-20 Beinpaar mit Klauenspornen. Pseudopleuren in einen kegelformigen, am Ende 2 spitzigen Fortsatz ausgezogen, Hinterrand der pseudopleura meist mit Seitendorn. Femur der Analbeine höchstens doppelt so lang wie breit, unterseits oft mit flachgrubiger Area, ventral aussen normal mit 2, 2 Dornen, ventral innen in der distalen Hälfte mit 2 Dornen (dazu oft basal noch ein winziges Dörnchen), Innenfläche ebenfalls distal mit 2 Dornen, dorsal innen 2 Dornen, dazu ein 2 spitziger Eckdorn; Endklaue ohne Klauensporne, die Endglieder zuweilen etwas kurzborstig (*C. lanatipes*, Kohlr.). Stigmen kurz bis gestreckt dreieckig. Färbung oliv, oft mit hellerer Medianlinie, Seiten- und Hinterränder der Segmente zuweilen dunkelgrün, Kopf und 1 Rückenplatte meist gelbrot. Länge bis 80 mm.”

Loc.—Smithfield, N. S. Wales; one very large specimen, measuring 90 mm. in length, answering in all its details the above description. The anal legs are very short and thickened, more so than in young or small adult specimens; the two tarsal joints are very short, the claw is twice as long as the preceding tarsal joint and very sharp.

Genus SCOLOPENDRA, *Linné (Newport)*, 1735.

SCOLOPENDRA METUENDA, *Pocock*, 1895.

Scolopendra metuenda, Pocock, Ann. Mag. Nat. Hist., (6), xvi., 1895.

Scolopendra metuenda, Pocock, in Willey's Zool. Results, 1898.
 „ „ Kraepelin, Mit. Nat. Mus. Hamburg, xx., 1903.

Mr. R. I. Pocock gives the following description of the single specimen preserved in the collections of the British Museum:—

“Colour. The terga a deep olive-chestnut, head nearly black; antennæ, legs, and sterna rather greener than the terga; at the posterior end of the body the chestnut colour predominates on the somites.

Head, without sulci, finely punctured, a little wider than long.

Antennæ long and slender, composed of nineteen or twenty long cylindrical segments, whereof the basal five are smooth, though punctured, and the rest pubescent.

Maxillipedes finely punctured, the precoxal plates very short, but wide, with convex distal edges, each furnished with upwards of a dozen or more small, in parts nearly obsolete, teeth, which present the appearance of having been worn away; the femoral process simple, small, and curved back against the appendage.

Tergites. First without either longitudinal or transverse sulci; on the rest the longitudinal sulci start upon the third and extend to the twentieth, but are everywhere faint (except upon the extreme anterior and posterior edges of the terga), and almost die out in the middle of the body; a faint shallow median longitudinal furrow upon the terga. The lateral margin from the third to the twenty-first elevated.

Sternites smooth and shining, weakly bisulcate.

Anal somite small; tergite not measially sulcate, its width equal to the length of its lateral margin, but a little less than its median length; pleuræ densely porous, terminating in a blunt process, which is tipped with four or five small spines; sternite long and narrow, posteriorly attenuate, with truncate hinder edge, its basal width about two-thirds of its length; legs long and slender, nearly four times the length of the head, the segments cylindrical and about four times as long as wide;

femora armed with about fourteen small spines, 3, 3, 2 in three longitudinal rows on the inner surface and 3, 3 in two rows on the external half of the lower surface; the femoral process armed with from four to ten small spines; no tarsal spur, claw basally spurred. The rest of the legs long and slender, with a tarsal spur.

Measurements in millimetres.—Total length, 163, of antenna, 37, of anal leg, 41; width of head, 10·5, length, 10; width of twelfth tergite, 14, of twenty-first, 8."

The only individual variations worth noticing are the following. With the large specimens, the six proximal antennal joints, and in one case the basal half of the seventh are naked whereas Pocock's type is said to have only five smooth antennal segments. The spine armature seems to vary considerably, on one of the large specimens the femora bore 2,3 or 3,3 on its ventral-outer edge, 2,2,2 or 2,3,2 on the inner surface; the other large specimen had five or six spines on the ventral-outer edge and sixteen or nineteen irregularly spread on the inner surface; while on a young specimen were observed 3,3 (or 6 irregular) on the ventral-outer edge and 2,3,2 (or seven irregular) on the inner surface.

Loc.—Solomon Islands; three specimens.

SCOLOPENDRA MORSITANS, *Linné*, 1766.

Scolopendra afzeli, Porat, Öfv. K. Svens. Akad. Förh., xxviii., 1871.

Scolopendra algerina, Newport, Ann. Mag. Nat. Hist., xiii., 1844.

Scolopendra algerina, Newport and Gray, Cat. Myr. Brit. Mus., 1856.

Scolopendra angulipes, Newport, *Loc. cit.*, 1844; Trans. Linn. Soc., xix., 1845.

Scolopendra angulipes, Gray, List Myr. Brit. Mus., 1844.

Scolopendra angulipes, Gervais in Walckenaer, Hist. Nat. Ins. Apt., 1847.

Scolopendra angulipes, Newport and Gray, *Loc. cit.*, 1856.

" " Sauss. and Zehnt. in Grandidier, Hist. Nat. Madagascar (texte), 1902; Abh. Senkenb. Nat. Ges., xxvi., 1901.

Scolopendra attenuata, Porat, *Loc. cit.*, 1871.

- Scolopendra bilineata*, Brandt, Bull. Sc. Acad. Petersb., vii., 1840.
- Scolopendra bilineata*, Newport, *Loc. cit.*, 1844; Gervais, *Loc. cit.*, 1847.
- Scolopendra bilineata*, Newport and Gray, *Loc. cit.*, 1856; Tömöswary, Term. Fuz., ix., 1885.
- Scolopendra brachypoda*, Peters, Naturw. Reise Mossambique, v., 1862.
- Scolopendra brandtiana*, Gervais, Ann. Sc. Nat. (2), vii., 1837; *Loc. cit.*, 1847.
- Scolopendra brandtiana*, Gervais, Voyage Castelnau, vii., 1859.
- Scolopendra brandtiana*, Brandt, *Loc. cit.*, 1840.
- " " Lucas in Blanchard, Hist. Nat. An. Artic., 1840.
- Scolopendra brandtiana*, C. Koch, Syst. Myriap., iii., 1847.
- " " Saussure, Éssai faune Myr. Mexique, 1860.
- Scolopendra californica*, Humb. and Sauss., Rev. Mag. Zool., xxii., 1870.
- Scolopendra californica*, Humb. and Sauss., Mission Sc. Mexique, 1872.
- Scolopendra carnipes*, Humb. and Sauss., *Loc. cit.*, 1870; *Loc. cit.*, 1872.
- Scolopendra chlorocephala*, Porat, *Loc. cit.*, 1871.
- Scolopendra cingulata*, Gervais, *Loc. cit. (nec. auct.)*, 1847.
- " *cognata*, Porat, *Loc. cit.*, 1871; Bih. K. Sv. Akad. Hand., iv., 1876.
- Scolopendra compressipes*, Wood, Journ. Acad. Nat. Sc. Philad., v., 1863.
- Scolopendra crassipes*, Brandt, *Loc. cit.*, 1840.
- " *elegans*, Gervais, *Loc. cit.*, 1847.
- " *erythrocephala*, Brandt, *Loc. cit.*, 1840; Newport, *Loc. cit.*, 1844; *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844; Gervais, *Loc. cit.*, 1847.
- Scolopendra erythrocephala*, Newport and Gray, *Loc. cit.*, 1856; Tömöswary, *Loc. cit.*, 1885.
- Scolopendra Fabricii*, Newport, *Loc. cit.*, 1845; Gervais, *Loc. cit.*, 1847.
- Scolopendra Fabricii*, Newport and Gray, *Loc. cit.*, 1856.

- Scolopendra formosa*, Newport, *Loc. cit.*, 1845; Gervais, *Loc. cit.*, 1847.
- Scolopendra formosa*, Newport and Gray, *Loc. cit.*, 1856.
- „ *fulvipes*, Brandt, *Loc. cit.*, 1840; Gervais, *Loc. cit.*, 1847.
- Scolopendra fulvipes elegans*, Brandt, *Loc. cit.*, 1840.
- „ *gervaisiana*, C. Koch, Die Myriopoden getreu, &c., 1863 (*nec.* Koch, 1841 and 1847, Gervais, Lucas).
- Scolopendra Grandidieri*, Sauss. and Zehnt. in Grandidier, Hist. Nat. Madagascar (atlas et texte), 1897; *Loc. cit.*, 1901.
- Scolopendra impressa*, Porat, *Loc. cit.*, 1876.
- „ *infesta*, C. Koch, *Loc. cit.*, 1847; *Loc. cit.*, 1863.
- „ *intermedia*, Porat, *Loc. cit.*, 1871.
- „ *leachii*, Newport, *Loc. cit.*, 1844; *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844.
- Scolopendra Leachii*, Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra leachii*, Porat, *Loc. cit.*, 1871.
- „ *limbata*, Brandt, *Loc. cit.*, 1840; Newport, *Loc. cit.*, 1845; Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra lineata*, Sauss. and Zehnt., *Loc. cit.*, 1902 (*nec.* Gervais).
- Scolopendra longicornis*, Newport, *Loc. cit.*, 1844; *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844.
- Scolopendra longicornis*, Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra longicornis*, Porat, *Loc. cit.*, 1876 (*nec.* Fabricius).
- Scolopendra lopadusa*, Pirotta, Ann. Mus. Civ. Genova, xi, 1878.
- Scolopendra lopadusa*, Kohlrausch, Arch. Naturg. Troschel, xlvii, 1881.
- Scolopendra marginata*, Say, Journ. Acad. Nat. Sc. Philad., ii, 1821.
- Scolopendra marginata*, Brandt, *Loc. cit.*, 1840; Lucas, *Loc. cit.*, 1840.
- Scolopendra marginata*, Gervais, *Loc. cit.*, 1837; *Loc. cit.*, 1847; *Loc. cit.*, 1859.

- Scolopendra marginata*, Bollman, Bull. U. S. Nat. Mus., 46, 1893.
- Scolopendra morsicans*, Gervais ex. p., 1837, *Loc. cit.* (*excl. syn.*), 1837; Lucas, *Loc. cit.*, 1840; Pocock, Ann. Mag. Nat. Hist., (7), i., 1898.
- Scolopendra morsitans*, Linné, Syst. Nat., ed. xii., et auct., 1766 (*nec.* C. Koch, 1863, Villiers, Rossius, Kutorga, Pal. Bauveis, Kohlrausch, 1881, n° 14, Karsch, 1881).
- Scolopendra mossambica*, Peters, Monatsb. K. preus. Akad. Wiss., xxix., 1855.
- Scolopendra pella*, Wood, Proc. Acad. Nat. Sc. Philad., 1861.
- „ *picturata*, Porat, *Loc. cit.*, 1871.
- „ *pilosella*, Porat, *Loc. cit.*, 1871.
- „ *planipes*, C. Koch, *Loc. cit.*, 1847; *Loc. cit.*, 1863.
- Scolopendra platypoides*, Newport, *Loc. cit.*, 1844; *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844.
- Scolopendra platypoides*, Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra platypus*, Brandt, *Loc. cit.*, 1840; Newport, *Loc. cit.*, 1844; Gray, *Loc. cit.*, 1844.
- Scolopendra platypus*, Gervais, *Loc. cit.*, 1847; de la Sagra, Hist. fis. Cuba, 1856.
- Scolopendra platypus*, Humb. and Sauss., *Loc. cit.*, 1872; Gerstäcker, Deeken's Reisen Ostaf., iii., 1873; Porat, *Loc. cit.*, 1876.
- Scolopendra platypus*, Karsch, Berl. entom. Zeits., xxv., 1881.
- „ „ Rainbow, Austr. Mus. Mem., iii., 1897.
- „ *porphyrotænia*, Wood, *Loc. cit.*, 1861.
- „ *Richardsoni*, Newport, *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844; Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra saltatoria*, Porat, *Loc. cit.*, 1871.
- Scolopendra scopoliana*, C. Koch, Wagner's Reise Alg., iii., 1841; *Loc. cit.*, 1847.
- Scolopendra scopoliana*, Gervais, *Loc. cit.*, 1847; Lucas, Explor. Sc. Alger., 1849; Ann. Soc. Entom. France, (3), i., et Bull., 1853.
- Scolopendra scopoliana*, Karsch, Arch. Naturg. Troschel, xlvi., 1881.

- Scolopendra scopoliana*, Mattozo, Journ. sc. Acad. Lisboa 1881.
- Scolopendra scopoliana*, Pocock, Ann. Mag Nat. Hist. (6), vii., 1891.
- Scolopendra spinosella*, Sauss. and Zehnt., *Loc. cit.*, 1897.
- „ *tigrina*, Newport, *Loc. cit.*, 1845; Gervais, *Loc. cit.*, 1847.
- Scolopendra tongana*, Gervais, *Loc. cit.*, 1847.
- Scolopendra tuberculidens*, Newport, *Loc. cit.*, 1844; *Loc. cit.*, 1845; Gray, *Loc. cit.*, 1844.
- Scolopendra tuberculidens*, Gervais, *Loc. cit.*, 1847; Newport and Gray, *Loc. cit.*, 1856.
- Scolopendra tuberculidens*, Humbert, Mem. Soc. Hist. Nat. Genève, xviii., 1865.
- Scolopendra vaga*, Porat, *Loc. cit.*, 1871.
- „ *varia*, Newport, *Loc. cit.*, 1845; Gervais, *Loc. cit.*, 1847.
- Scolopendra varia*, Newport and Gray, *Loc. cit.*, 1856.
- „ *Wahlbergi*, Porat, *Loc. cit.*, 1871.
- Eurylithobius Slateri*, Butler, Ann. Mag. Nat. Hist., (4), xvii., 1876.
- Eurylithobius Slateri*, Pocock, *Loc. cit.*, 1891.
- Heterostoma elegans*, Newport, *Loc. cit.*, 1845; Newport and Gray, *Loc. cit.*, 1856.
- Heterostoma fulvipes*, Newport, *Loc. cit.*, 1845; Newport and Gray, *Loc. cit.*, 1856.

Kraepelin, 1903, gives the following description:—

“Kopfplatte zerstreut schwach punktiert, ohne Längsfurchen. Fühler 18-21 gliedrig (selten einerseits 17 gliedrig oder bis 23 gliedrig), meist 19- oder 20 gliedrig, 6-7 (selten 8-9) Grundglieder glatt und glänzend. 1 Rückenplatte kaum punktiert, ohne Halsringfurche; die medialen Längsfurchen im 2 oder 3 Segment beginnend bis zum 20 Segment; Berandung sehr variabel und wahrscheinlich bei ♂ und ♀ verschieden, oft schon im 5 (oder sogar schon im 3) Segment beginnend, oft aber auch erst in den mittleren Segmenten (im 8, 11, 13, &c.), zuweilen auch erst in 18 oder 19 Segment, ohne dass diese Verschiedenheiten eine Trennung nach geographischen Gebieten zuließen; letzte

Rückenplatte fast stets³ mit erkennbarer, durchgehender Medianfurche, glatt, nicht punctiert, ihr Hinterrand flachbogig vorgezogen. Sternocoxalplatte zerstreut punctiert, oft mit Andeutung einer Medianfurche, ohne Querfurche; die Zahnplatten wenig breiter als lang, jederseits mit ziemlich deutlichen 4-5 Zähnen, von denen jedoch die 2 inneren meist etwas verschmolzen und kleiner sind als die übrigen. Bauchplatten glatt, vom 2-20 Segment mit 2 medialen Längsfurchen, die aber in den letzten Segmenten meist nicht bis zum Hinterrande durchgehen; letzte Bauchplatte kaum so lang wie breit, nach hinten verjüngt, ihr Hinterrand gestutzt-gerundet, vor demselben meist flache Mediandepression. 1-19 Beinpaar mit 1 Tarsalsporn, 20 meist ohne, seltener mit Tarsalsporn. Pseudopleuren mit ziemlich kurzen, kegelförmigem Fortsatz, am Ende meist 4 spitzig, seltener 3- oder 5 spitzig, dazu am Hinterrande der Pseudopleura meist ein Seitendörnchen; die Porenarea in der Hinterhälfte der Pseudopleura den "Umschlagsrand" der letzten Rückenplatte nicht erreichend. Femur der Analbeine bei juv. schlank, bei ad gedrungener, dorsal meist flach, beim ♂ aussen (und oft auch innen) breit berandet, beim ♀ kaum berandet, ventral normal mit 3 reihen von je 3 Dornen (von denen aber einige fehlen können), auf der Innenfläche ohne Dornen, dorsal meist 3, 2 oder 2, 2 oder 2, 4 Dornen, dazu ein meist 4 spitziger (selten nur 3 spitziger oder aber 5-8 spitziger) Eckdorn; Patella dorsal abgeflacht und berandet wie der Femur, bei juv. beide Glieder mehr gerundet. Färbung äusserst variabel, meist lehmgelb bis rotgelb, mit oder ohne grüne Hinterränder der Segmente, seltener olivbraun (wobei Kopf, sowie 1 und letztes Rückensegment meist heller gelbbraun), hellgrünen Längstreifen (juv.) resp. Hinterrändern der Segmente, oder tief dunkelgrün. Länge in der Regel nur 70-90 mm., doch liegen mir auch Exemplare von 105 ja 120 mm. Länge (und 12 mm. Breite) vor".

Locs.—Bourke and Wilcannia, Darling River floods, May to June 1890; six specimens: same locality; four large specimens: same locality; four young specimens. Narrabri, N. S. Wales; two adult and one young specimen. Lawler, South Australia; one specimen.

On two of the large specimens of n° 2a the spines of the anal femora are numerous and irregularly disposed, though the inner surface remains typically spineless. One of these specimens has a crippled anal leg.

³ Nur bei einigen Exemplaren aus Madagaskar war die Medianfurche nicht entwickelt.

SCOLOPENDRA LÆTA, *Haase*, 1887.

Scolopendra læta, Haase, Ber. K. Zool. Mus. Dresden, 1886-87.

Scolopendra læta, Kraepelin, Mit. Nat. Mus. Hamburg, xx., 1903.

Rhombocephalus latus, Pocock, Ann. Mag. Nat. Hist., (7), viii., 1901.

Kraepelin, 1903, re-described this species as follows:—

“Kopf und Rückenplatten sind meist deutlich punktiert, die Fühler nur 17-18 gliedrig, 6 Grundglieder glatt und glänzend. Mediale Längsfurchen der Rückenplatten meist schon im 2 Segment beginnend (hier oft abgekürzt), dazu oft vom 6 an ein kurzer Medianstrich am Hinterrande; Berandung im 19 Segment schwach, nur im 20 und 21 Segment deutlich; letzte Rückenplatte mit Medianfurchen. Sternocoxalplatte jederseits mit 4-5 Zähnen. Bauchplatten vom 2-20 Segment mit durchgehenden Längsfurchen. Beinpaare im 1-19 Segment mit 1 Tarsalsporn. Pseudopleuren spitz vorgezogen, 2-4 spitzig, Hinterrand der Pseudopleura mit Seitendorn. Femur der Analbeine bedornt, die Dornen lang und spitz, der Eckdorn 3-4 spitzig. Färbung dunkelgrün, an den Seitenrändern wenigstens der letzten Segmente heller, Beine bis zum 17 Segment gelb, die 3-4 letzten Paare nur am Grunde gelb, dann intensiv grün, so dass sie geringelt erscheinen. Länge bis 50 mm.”

Loc.—Penrith, N. S. Wales; four specimens.

GEOPHILOMORPHA.

GENUS PACHYMERINUS, *Silvestri*, 1905.

Pachymerinus, Silvestri, Zool. Jahrb., Suppl. vi., Fauna Chilen., 1905.

Pachymerinus, Silvestri, Mit. Nat. Mus. Hamburg, xxiv., 1907.

This genus needs re-describing, as the characters given by the author are no longer sufficient:—

(Eupleurium as in *Geophilus*).⁴

Labrum with a distinct median plate (more or less developed), destitute of teeth or lashes. Lateral plates fringed.

⁴ The characters placed in brackets are not considered so far as having a generic value, and are mentioned *pro memoriam*.

(Mandible with its ventral part enlarged and fringed with spined bristles; with or without a blunt tooth at the apex.)

Coxosternum of first maxillæ undivided (all the elements distinct from one another; lateral palpi present or missing).

Coxosternum of second maxillæ divided into two plates (which remain in contact on the middle line); sternal and pleural parts fused together and with the corresponding coxa⁵ (without chitinized suture; anterior inner angle provided with a conical, more developed process; last joint armed with a smooth claw).

Tergum of maxillipedes much narrowed anteriorly; inner margin of pleuræ almost parallel; (joints and claw of maxillipedes armed with more or less developed teeth).

Sterna destitute of porous area; last sternum narrow.

Anal legs, including coxa, seven jointed, the last joint being tipped with a claw coxa bearing isolated pores.

(Anal pores present).

Type.—*Pachymerinus millepunctatus* (Gervais?), Silvestri. Several species have been recorded from the Pacific slope of South America, but it is uncertain if they belong to the Genus *Pachymerinus* as outlined above.

PACHYMERINUS FROGGATTI, sp. nov.

(Figs. 6–17).

Parallel sided on the anterior two-thirds of the body, then tapering backwards.

♂: Length 28 mm. —Breadth of the first tergum 1 mm.; of the penultimate 0.40 mm. —55 pairs of legs.

Cephalic plate longer than broad (in the proportion of 1.50 to 0.85), leaving uncovered a large part of the maxillipedes. Anterior margin reaching the base of the claw of the maxillipedes, straight, slightly notched in the middle; lateral margins almost parallel; posterior angles rounded. The surface shows no frontal sulcus, but a pale line is to be seen

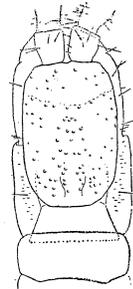


Fig. 6. *P. froggatti*, Brölem. Cephalic plate and tergum of maxillipedes.

⁵ Attems, 1909 (Jena Denkschr., xiv.), admits that the part of the coxosternum, hitherto considered as answering the coxa, represents two joints fused together; but his opinion seems by no means justified as the sulcus he refers to does not appear to exist.

and the outer margin is uneven at the very spot where the sulcus could be expected to exist. The basal furrows are very faint and chiefly indicated by irregular rows of punctures rougher at the base than along the sides of the plate. Some other strong punctures are to be seen in the distal third (Figs. 6 and 7).

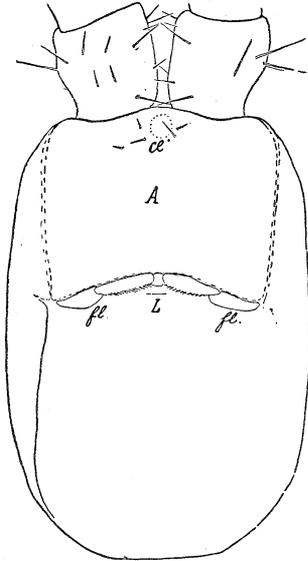


Fig. 7. *P. froggatti*, Brölem. Cephalic plate, ventral view, after removing the mouth-parts.

Antennæ moderately elongate (4.10 mm.), without any special setæ.

Median plate of labrum small, equal to the thirteenth part of the total breadth of the labrum, without any process; lateral plates transversely stretched, five times broader than long, fringed with delicately plumose lashes. Pre-labial zone somewhat shorter than broad, furnished with a so-called "Clypealarea" and with but few bristles, say eight in two rows placed 2+6. Sutures of



Fig. 8. *P. froggatti*, Brölem. Labrum (the lower branches of the fulcri are missing).

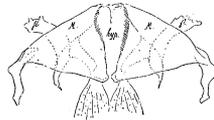


Fig. 9. *P. froggatti*, Brölem. Mandibles *in situ*, with hypopharynx (*hyp.*) and lower branches of fulcri, (*fl.*)

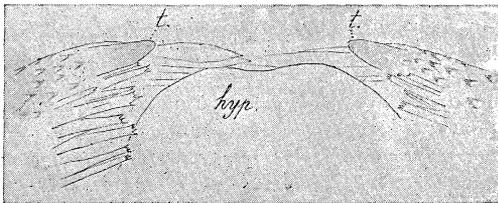


Fig. 10. *P. froggatti*, Brölem. Apex of mandibles, showing the blunt tooth (*t.*); hypopharynx (*hyp.*).

cephalic pleuræ distinct (Fig 8).

Mandible provided, beside the pectinate lamella, with a blunt and well chitinized tooth at the apex,

and with spined setæ along the ventral margin (Fig. 9). These setæ are cylindrical bristles truncate and crowned with a few (3-5) strong triangular spines, as shown in the figure (Fig. 10).

Coxosternum of first maxillæ undivided; only one pair of short acuminate femoral palpi could be detected (Fig. 11).

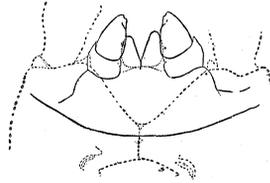


Fig. 11. *P. froggatti*, Brölem. First maxillæ, dorsal view.

Coxosternum of second maxillæ divided but still in contact on the middle line. Sternal and pleural plates fused together and with the corresponding coxa without chitinous suture. Anterior inner angle tipped with a short conical process. Surface provided with numerous bristles along the anterior and the inner margin. No tooth at the distal outer end of the patellar joint. The last joint bears a short smooth claw (Fig. 12).

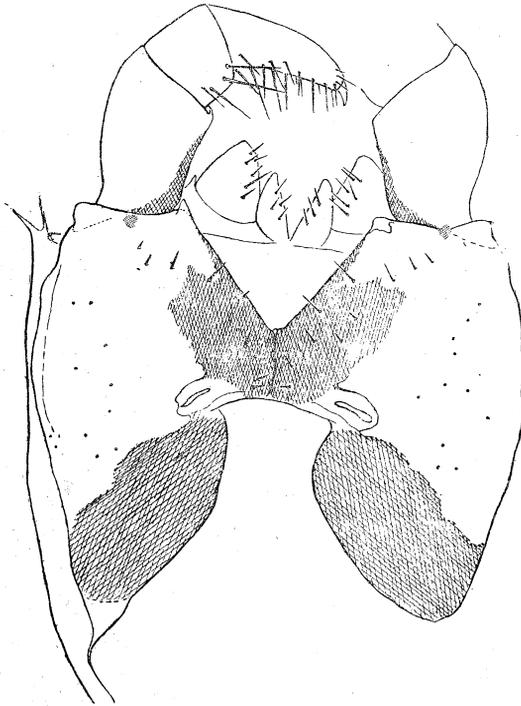


Fig. 12. *P. froggatti*, Brölem. Second maxillæ, ventral view.

Tergum of maxillipedes narrow, its sides converging strongly in front. Coxosternum of maxillipedes somewhat broader than long, with punctured surface

and with a distinct median sulcus running through. Anterior margin slightly notched allowing the tooth-like angle of the coxa to appear. Little is to be seen of the pleuræ from below; their inner margin is almost parallel (Fig. 13). Femora and claw armed, the former with two chitinized tubercles along the inner edge, the latter with a short but strong basal tooth; it is worth mentioning that the trace of suture between femora and trochanter passes above the first tooth in order that the latter has to be considered as belonging to the trochanter.

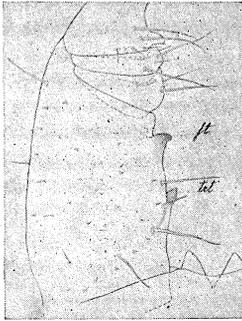
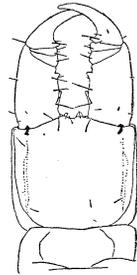


Fig. 14. *P. froggatti*, Brölem. Inner margin of maxillipedes; (ft.), femoral tooth; (trt.), trochanter tooth.



A few only of the anterior terga are faintly punctured, every one from the second to the penultimate is bisulcate. Sterna from the second segment with a median sulcus strongly impressed but short on the anterior part of the body, growing gradually longer and weaker

Fig. 13. *P. froggatti*, Brölem. Maxillipedes, ventral view.

towards the posterior end. The sterna show besides near the posterior margin—on the anterior segments at least—a rounded swelling which is to be held homologous to what Attems has described for *G. corralinus* as a “zugenformiger lappen”; it is scarcely developed with the present species (Fig. 15).

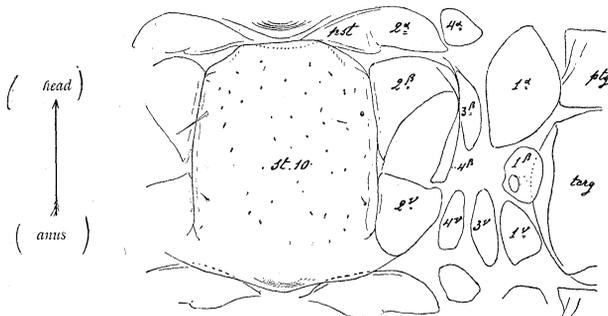


Fig. 15. *P. froggatti*, Brölem. Sternum and eupleurium of 10th segment. (Signs as in Fig. 31).

Ventral pores wanting. Presterna divided.

Last tergum nearly as long as broad at the base, with margins converging backwards, the breadth of the posterior margin being less than half the breadth of the anterior.

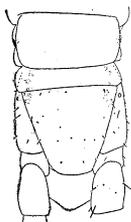


Fig. 16. *P. froggatti*, Brölem. Last leg segment, dorsal view.

Last sternum as long as broad, narrow, scarcely wider at the base than the preceding sternum and far more narrow than the anal segment—coxæ of anal legs included; sides feebly converging and slightly convex; apex truncate.

Anal legs rather short, seven jointed (coxæ included), armed with a claw and furnished with a few long bristles and a clothing of tiny short hairs on the ventral surface. Coxæ almost parallel sided, showing on the ventral and lateral surfaces some ten

to twelve pores, of which four to five in one row concealed under the lateral margin of the sternum, the others remaining uncovered. Another set of pores is to be seen on the dorsal surface opening beneath the anterior angle of the tergum and the side of its pretergum (Figs. 16 and 17.)

Male appendages long, acuminate. Anal pores present but feebly chitinized.

This species seems nearly related with *Geophilus concolor*, Gervais, which has a larger number of leg-bearing segments, say sixty-nine to seventy-one, a cephalic plate abruptly narrowed in front and no pores on the dorsal surface of the anal coxæ. Nothing is known as to the structure of the mouth-parts of Gervais' species.

Loc.—Penrith, N. S. Wales; one ♂ specimen.

Genus GEOMERINUS, *gen. nov.*

This genus, the type of which is *Geomerinus curtipes*, Haase, only differs from the preceding *Pachymerinus* by the joints of the anal legs which number six, instead of seven. Since this character ranks as generic amongst the Geophilomorpha, a new division has to be erected for the reception of Haase's species.



Fig. 17. *P. froggatti*, Brölem. Last leg-bearing segment, ventral view.

R. I. Pocock, 1901⁵, has endeavoured to save from oblivion the generic name *Necrophlaeophagus*, and has used it for some Australian species amongst which is *G. curtipes*, Haase. This could only be justified if 1st, *G. longicornis*, the type of Newport's genus, proved to be generically different from the other true *Geophilus* species: and if 2nd, the Australian species were found to be congeneric with *G. longicornis*. Whatever might be the position of *G. longicornis* can still be disputed, but it is certain that at least *G. curtipes* cannot be placed alongside with *G. longicornis* from which it differs by the structure of the second maxillæ, by the number of joints of the anal legs, &c., &c.

GEOMERINUS CURTIPES (*Haase*), 1887.

(Figs. 18-25).

Geophilus curtipes, Haase, Ber. K. Zool. Mus. Dresden, 1886-1887.

Geophilus curtipes, Attems, Zool. Jahrb., xviii., heft 2, 1903.

Necrophlaeophagus curtipes, Pocock, Ann. Mag. Nat. Hist. (7), viii., 1901.

A strongly chitinized, dark coloured species, resembling a *Mecistocephalus*; parallel sided in front, slightly tapering in the second half.

♀: Length 67 mm.
—Breadth of the first tergum 2.10 mm.; of the penultimate, 1 mm.
—71 pair of legs.

Cephalic plate much longer than broad (in the proportion of 2.60 to 1.70), anterior margin reaching the base of the claws of maxillipedes. Anterior and posterior margins almost straight; lateral margins slight-

Fig. 18. *G. curtipes*, Haase. Cephalic plate and tergum of maxillipedes.

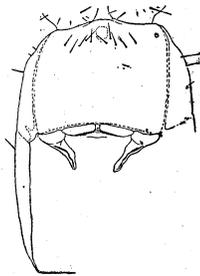
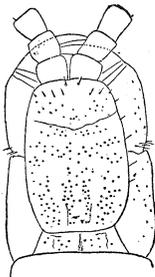


Fig. 19. *G. curtipes*, Haase. Cephalic plate, ventral view.

ly and unevenly curved, the greatest width being in the posterior half. Surface showing two very faint longitudinal impressions in front of the posterior margin, and a

⁵ Pocock—Ann. Mag. Nat. Hist., (7), viii., p. 339.

hardly distinct linear furrow about the anterior third in the shape of a broad angle, the apex of which is turned backwards; the surface is punctured all over but more densely and more deeply along the middle line and in front of the posterior angles as well as behind the apex (Figs. 18 and 19).

The antennæ seem rather long; the right antenna is broken after the 7th joint, the left is entire but does not appear to be normal, and measures 5 mm.; the joints are longer than broad and irregularly beset with bristles.

Prelabial zone somewhat shorter than broad, with an irregular row of 5 + 5 bristles near the anterior margin, and a "Clypeal-area" of a subquadrate shape. Sutures of the cephalic pleuræ distinct. Labrum divided into three plates; median plate small, longer than broad, equal to about the twentieth part of the total breadth of the labrum, smooth; lateral plates more than four times broader than long, furnished with delicately plumose lashes.

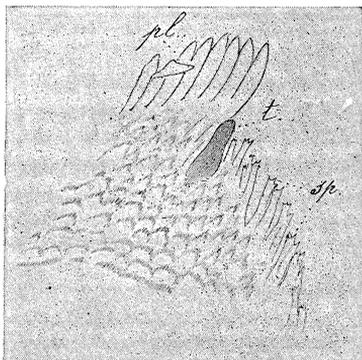


Fig. 20. *G. curtipes*, Haase. Apex of the mandible with the blunt tooth (*t.*); *pl.*, pectinate lamella; *sp.*, spined bristles.

axis of the body, and is furnished with the peculiar spined bristles as described in *Pachymerinus froggatti*; the length of these bristles is about 36 μ . (Figs. 20 and 21).

Coxosternal plate of the first maxillæ undivided and destitute of palpi; coxal process distinct, triangular, blunt; the next maxillar joint is provided with a rudimental palpus.

Coxosternum of the second maxillæ divided into two halves on the middle line; each half is considered as the equivalent of coxa,

Mandible crowned with the usual pectinate lamella; at the distal end of the latter is to be seen a single blunt strongly chitinized tooth shorter than the next teeth of the pectinate lamella. Ventral



Fig. 21, *G. curtipes*, Haase. Three-tooth shorter than the next teeth of the mandible, much enlarged.

part of the mandible enlarged; when seen *in situ*, its margin is parallel to the

sternum and pleura of one side coalesced into one plate. No division whatever is to be seen; yet the proximal inner margin

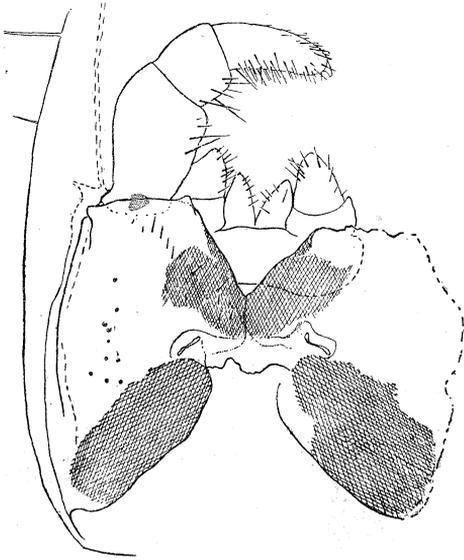


Fig. 22. *G. curtipes*, Haase. First and second maxillæ, ventral view.

shows a reticulate structure covering a wide space which is to be held equivalent to the pleural (or to the pleurosternal?) part of the organ. The process of the distal inner angle is rudimental. The bristles are fairly numerous (a dozen or so), and somewhat distant from the anterior margin. Maxillar joints three, rather stout, the distal joint armed with a very short claw (Fig. 22).

Maxillipedes wide, largely emerging sideways from under the cephalic plate, punctured all over. Tergum short, strongly narrowed anteriorly; its surface uneven, punctured. Pleuræ covering the dorsal part of the coxæ, scarcely visible on the ventral side, their inner margins almost parallel. Coxosternal plate quadrangular, somewhat broader than long with a faint shallow median impression, and with two rudimental teeth in front. Femora long, armed with two blunt tubercles along the inner edge, one in the middle (trochanter tooth) the other next to the distal angle. Claw long, with a basal short hook-like tooth (Fig. 23).

Terga widely punctured; bisulcate from the first segment, where the sulci are converging anteriorly instead of being parallel as on the following segments.

Sterna coarsely punctured on the first segments, less so on the middle and posterior segments. Ventral pores wanting. From the second or third segment to the penultimate the sterna are divided by a median short sulcus equal to nearly one-third of the

total length of the plate; it is more deeply impressed at its anterior end and deeper on the first segments than on the last. Besides the anterior sterna show, immediately in front of the posterior margin, a rounded swelling as witnessed on the preceding species. Presterna divided on the middle line. Eupleurium of the *Geophilid* type.

Last tergum a trifle shorter than broad at the base; sides converging gently; posterior margin

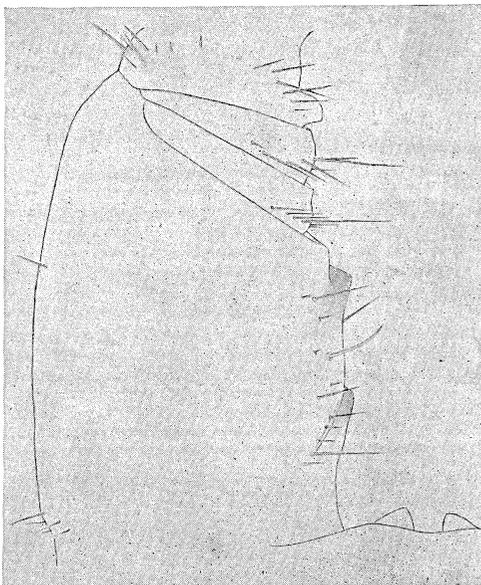


Fig. 23. *G. curtipes*, Haase. Inner margin of maxillipedes.

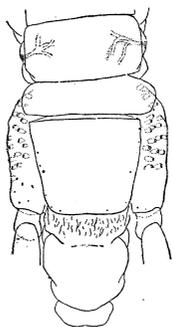


Fig. 24. *G. curtipes*, Haase. Last leg-bearing segment, dorsal view.

truncate or even somewhat excised in the middle.

Last sternum narrow, not wider at the base than the preceding sternum, longer than broad, truncate posteriorly, with lateral margins evenly convex. Presternum divided.

Anal legs short, six jointed (coxa included), armed with a sharp claw, clothed ventrally with short

thin hairs. Coxæ large, somewhat swollen, uneven and with but

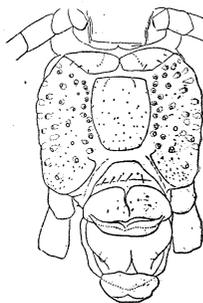


Fig. 25. *G. curtipes*, Haase. Last leg-bearing segment, ventral view.

few tiny setæ; pores numerous spread all over except on the posterior third of the dorsal surface; the pores are irregular in size, a row of small pores is normally concealed under the lateral margin of the sternum (Figs. 24 and 25).

Anal pores present.

Haase's description mentions that the claw of the maxillipedes, when closed, hardly protrudes beyond the anterior margin of the head, a character which might result from a stronger contraction of the animal. His specimens are said to be furnished with a small tooth inside the third joint of the maxillipedes (missing in the Parramatta specimen), this however is a very unimportant character. Also the last joint of the antennæ, according to the German author, should bear a conical appendage, a fact which could not be controlled here, the antennæ being abnormal. In spite of these differences there seems to be no doubt that the two forms are specifically identical.

Loc.—Parramatta, N. S. Wales; one female.

Genus SCHIZORIBAUTIA, *gen. nov.*

(Eupleurium as in *Geophilus*).

Median plate of labrum (more or less developed), destitute of teeth or lashes; lateral plates fringed.

(Mandible with its ventral part enlarged and fringed with spined bristles; without a blunt tooth at the apex).

Coxosternum of first maxillæ undivided, as in *Pachymerinus*.

Coxosternum of second maxillæ divided into two plates (and standing apart from one another on the middle line); coxal, sternal and pleural plates almost entirely free, *i.e.* not fused together into one plate as in the preceding genus; (anterior inner angle tipped with a conical process; patella joint bearing a tooth on its anterior outer angle; last joint armed with a smooth claw).

Tergum of maxillipedes narrowed anteriorly; internal margin of pleuræ parallel; (inner edge of the femoral joint unarmed).

Ventral pores present, condensed on one or two areas on a certain number of sterna; last sternum wide.

Anal legs, coxæ included, seven jointed; (the last joint tipped with a claw); coxa bearing isolated pores.

(Anal pores present).

Type.—*Schizoribautia rainbowi*, sp. nov.

SCHIZORIBAUTIA RAINBOWI, *sp. nov.*

(Figs. 26-34).

Body fairly robust, scarcely narrowed anteriorly, tapering in its last third.

♀:—Length about 50 mm.—Breadth of the first tergum 1.30 mm., in the middle of the body 1.50 mm.; of the penultimate tergum 1 mm.—65 pairs of legs.

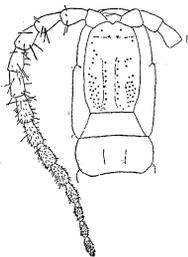


Fig. 26. *S. rainbowi*, Brölem. Cephalic plate and tergum of maxillipedes.

rounded and notched in the middle; posterior margin straight; lateral margins evenly curved. Surface bearing on its posterior half two deep furrows slightly diverging frontwards; besides it is roughly punctured in front of the posterior angles and at the bottom of the furrows. There is no distinct frontal sulcus, but a faint transverse depression is to be seen in its stead (Fig. 26).

Antennæ long, over one-tenth of the length of the body (5.50 mm.); joints longer than broad; the five basal joints are clothed with setæ long



Fig. 27. *S. rainbowi*, Brölem. Labrum.

Cephalic plate much longer than broad (in the proportion of 1.50 to 0.90), with its anterior margin reaching the base of the claw of the maxillipedes. Anterior margin

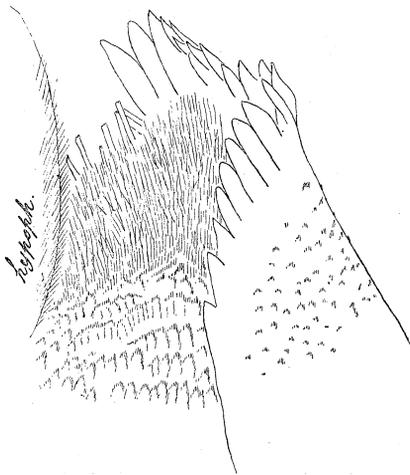


Fig. 28. *S. rainbowi*, Brölem. Apex of right mandible, dorsal view.

and scarce, becoming more numerous and shorter towards the end of the antenna.

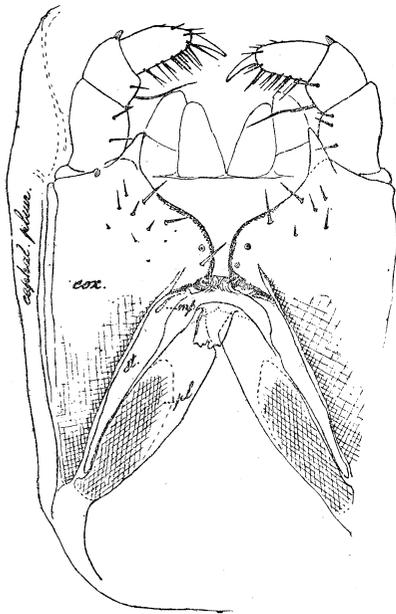


Fig. 29. *S. rainbowi*, Brölem. Second maxillæ, ventral view.

Prelabial zone distinctly shorter than long, with a circular area near the apex and shortish setæ disposed on three rows placed 2, 2 and 5. Median plate of labrum rather large, its breadth being one-tenth of the total breadth of the labrum; its surface is uneven but destitute of teeth or lashes. Lateral plates almost twice as broad as long, furnished with but few lashes at the inner end of its posterior edge. Fulcri broad (Fig. 27).

Mandible as in the preceding species, but without a blunt tooth at the distal end of the pectinate lamella. The inner convex surface just below the apex is densely clothed with delicate setæ (Figs. 28 and 29).

Coxosternum of first maxillæ undivided, without lateral palpi; coxal process long. Next joint bearing a very small palpus.



Fig. 30. *S. rainbowi*, Brölem. Inner margin of maxillipedes.

Coxosternum of second maxillæ divided into two halves which stand apart from one another. Each half is divided into three distinct parts which are considered homologous to the coxa, the sternum and the pleura. The pleural plate stands for itself, being surrounded with membrane; the sternal plate, in shape of a narrow band, is almost entirely isolated by a membranaceous cleft from the coxa with which it is fused only by its inner (anterior) angle; the metameric pore is concealed under the inner end of

the sternal plate. This peculiar structure comes near to that of the genus *Ribatia*, in which the sternal and coxal plates are coalesced, the cleft being replaced by a strongly chitinized ridge. The distal inner angle of the coxa is produced into a long conical process. The patellar joint is armed at its outer distal angle with a short, blunt but strongly chitinized tooth; the claw is long, slender and smooth. The coxal plate bears a set of eight to ten bristles disposed on three rows near the anterior inner margin; a particularly long bristle can be seen emerging from beneath the patellar joint.

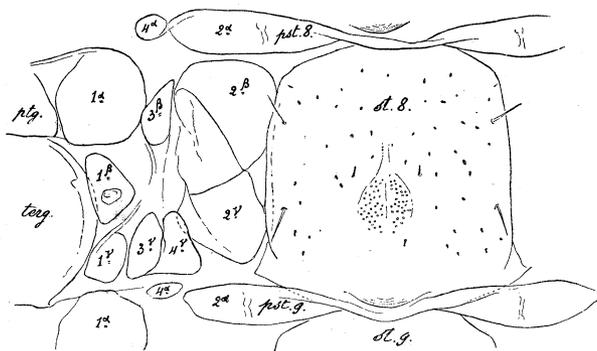


Fig. 31. *S. rainbowi*, Brölem. Sternum and eupleurium of the eighth segment; *st.*, sternum; *pst.*, presternum; 1, 2, 3, 4, pleurites.

Tergum of maxillipedes wide at the base, with sides strongly converging; punctured. Inner margins of the pleuræ parallel (Fig. 30). Maxillipedes largely overlapping the sides of the head. Coxosternum nearly as long as broad, subquadrate, roughly punctured, with straight chitinized lines almost reaching the condyli of the femora, and a faint median sulcus widened into a dimple in front of the centre. Two rudimentary teeth emerge from below the anterior margin which is almost straight. Femora long, without any well defined tubercle although the inner edge is somewhat sinuate and chitinized. Claw strong, with a small basal tooth (Fig. 31).

Terga bisulcate from the second segment, widely and faintly punctured on the anterior part of the body.

Anterior sterna roughly punctured and provided with a median sulcus; the sulcus does not reach the anterior margin and widens behind the middle into a flat, rounded or fusiform

dimple the bottom of which is pierced by the ventral pores. On the sterna 32, 33, 34, and to a lesser degree 31 and 35, the median sulcus assumes the shape of a deep, wide, abrupt sided furrow running through from the anterior to the posterior margin.

Whether this structure is normal or due to the state of preservation of the only specimen at hand, could not be decided. Further backwards the sulcus grows fainter but never disappears entirely.

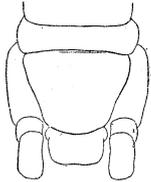


Fig. 32. *S. rainbowi*, Brölem. Last leg-bearing segment, dorsal view (somewhat schematized).

teguments should be prepared on purpose. The sterna are covered with numerous hairs; these are very short, except the two marginal pairs which are of moderate length.

Last tergum almost as long as broad at the base, sides strongly converging, somewhat excised behind the middle and running into the posterior margin which is rather rounded.



Fig. 33. *S. rainbowi*, Brölem. Last leg-bearing segment, ventral view.

Last sternum wide, its anterior margin wider than the sternum of the preceding segment, truncate, with lateral margins strongly converging backwards; its surface is divided by a faint median furrow.

The anal leg, coxa included, is seven jointed; the joints are clothed underneath with tiny short hairs intermingled with a few long bristles (♀); the last joint is tipped with a moderately strong claw. Coxa swollen; its ventral inner margin is provided with a wide and deep furrow, concealed under the margin of the sternum, in which open the pores of numerous glandulæ independent of one another; three of these (on each side) appear more conspicuous, being nearer to the surface, so that an unwarned superficial observer could easily be mistaken. The free distal end of the same inner margin is swollen and produced, as is often the case with the species of the genus *Schendyla*, and is clothed with dense short hairs (Figs. 32, 33, 34). Anal pores present.

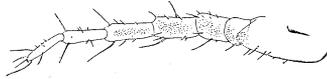


Fig. 34. *S. rainbowi*, Brölem. Anal leg, ventral view.

Loc.—Parramatta, N. S. Wales; a single female.