

PLATE XXXV.

(Figs. 1 to 6 are from Canon Norman's type specimens.)

- Fig. 1. *Ascidia producta*, Hnk., natural size, from right side.
 2. The same species with the test removed, from left side, showing alimentary and reproductive organs, and renal vesicles scattered over the stomach.
 3. The same, from the right side, showing the very faint muscles.
 4. Tentacles and dorsal tubercle of same species.
 5. Dorsal tubercle of another specimen of same species.
 6. Part of branchial sac of same.
 7. Tentacles and dorsal tubercle, &c., of a specimen of *Ascidia producta* from Tarbert, Loch Fyne (W. A. H.).
 8. Mass of *Polycarpa glomerata*, from Port Erin.
 9. Dorsal tubercle, &c., of *P. glomerata*.
 10. Atrial tentacles of *P. glomerata*.
 Figs. 11, 12, 13. Graphic branchial formulæ of 3 individuals of *P. glomerata*, showing the condition of the branchial folds, &c.

PLATE XXXVI.

- Fig. 1. Viscera of *Styela rustica*.
 Fig. 2. Viscera of *Styela monoceros*.
 Figs. 3, 4, 5, 6, & 7 show different specimens of *Forbesella tessellata*, and give some idea of the range in variation of shape; natural size.
 Fig. 8. Part of the branchial sac of *Forbesella tessellata*.
 9. Tentacles, dorsal tubercle, and languets of *Forbesella tessellata*.
 10. Interior of atrial siphon of same species, showing partial diaphragm.
 11. Part of branchial sac of *Polycarpa quadrangularis*, Forbes.
 12. Dorsal tubercle of *P. quadrangularis*.

Contributions to our Knowledge of the Arthropod Fauna of the West Indies.—Part II. Chilopoda. By R. I. Pockock, of the Natural History Museum. (Communicated by W. PERCY SLADEN, Sec. Linn. Soc.)

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A GLANCE at the following list of the species of Chilopoda or Centipedes here enumerated as West Indian will show that the members of this group are neither numerous nor unknown. Only 5 species have been described as new, and 4 of these—namely, the two species of Geophilidæ, the *Cryptops*, and the *Newportia*—are of such small size, that they are not likely to come to hand again without special search. It is consequently probable that we shall have to wait many years before we discover whether or not they are peculiar to the Lesser Antilles.

But considering that the species of *Scolopendra*, *Rhysida*, *Oto-cryptops*, *Scolopocryptops*, one of the species of *Newportia*, not to mention three of the species of Geophilidæ, are found also on the mainland, it seems highly probable that the others, which are so far only known to be West Indian, will ultimately prove to have a wide range in the northern parts of the Neotropical Region.

Seeing that the species of *Scolopendra* occurring in North and Central America appear to be mostly well known, and that few new ones of unquestionable genuineness have been for some years recorded from the northern parts of South America, it is not likely—if one may venture to conjecture on such a point—that many new species of this genus will be brought to light in the West Indies. But with the genera that do not attain the dimensions of this last, such as *Cryptops* and the Geophilidæ, it must be far otherwise. It would indeed be the height of absurdity with our at present fragmentary knowledge on the point, to guess at the numbers of new species, and probably also new genera of Geophilidæ that could be discovered with a little diligent collecting.

A marked peculiarity in the West-Indian Chilopod fauna is the apparent absence of representatives of the family Lithobiidæ. That the genus *Lithobius*, however, does in reality not occur in these islands seems improbable; for it is exceedingly abundant in both North America and Mexico, and is not unknown in Brazil. It is much to be hoped that collectors in these islands will keep their eyes open for this Centipede.

The families that are at present known from the West Indies may be readily recognized as follows:—

- a. With only 15 pairs of legs; the legs extremely long and with multi-articulated tarsi; tracheæ opening upon the tergites; eyes compound SCUTIGERIDÆ.
- b. With from 21 to over 100 pairs of legs; legs short, and with mostly simple tarsi; tracheal stigmata opening beneath the terga; eyes absent, or formed of simple ocelli.
 - a¹. With from 21–23 pairs of legs; many of the somites without stigmata SCOLOPENDRIDÆ.
 - b¹. With over 30 pairs of legs; a stigma found on each side of all the somites except the first and last; eyes always absent GEOPHILIDÆ.

Family SCUTIGERIDÆ.

1. SCUTIGERA GUILDINGII (*Newport*).

Cermatia Guildingii, *Newport*, *Tr. Linn. Soc.* xix. p. 356; *Cat. Myr. Brit. Mus.* pp. 10-11.

Colour: a wide ochre-yellow band in the middle of each tergite, forming with the others a continuous pale median dorsal longitudinal stripe which covers the stoma-saddles, the rest of the tergites a deep blackish green; the upper surface of the head pale on each side. Legs green proximally, obscurely banded, tibiæ subochraceous, tarsi entirely ochraceous; antennæ green, olivaceous distally.

Head depressed above in its posterior half.

Tergites strongly convex from side to side, only slightly uneven; the stoma-saddles wide, but not at all elevated, the posterior end of the stomata not reaching the posterior edge of the tergites; the tergites finely pubescent, and covered with small spicules. The last tergite with its hinder border very slightly emarginate.

Length 17 mm.

Locality. St. Vincent (*H. H. Smith*). One male example.

"Very rare, under stone, 500 ft.; a second example at 1000 ft. in rotten wood; a third example, measuring only 6.5 mm., at an altitude of 2000 ft."

2. *SCUTIGERA SUPERBA, *Meinert*, *Vid. Medd. Nat. Foren.* 1886, p. 104.

Colour fulvous or flavous, the dorsal laminæ reddish brown, with a wide median chalky-white band, darker at the sides.

Body tolerably wide, narrowed behind and before; slightly convex.

Head deeply and triangularly depressed, with elevated smooth margins.

Tergites less highly marginate, rugulose, roughened, with sharp subserially arranged spines and very minute granules; the margin obscurely crenulate, manifestly fimbriate; the posterior margin produced into an obtuse angle, tolerably widely sinuate in the middle; the last tergite tolerably wide, posteriorly rounded and entire. *Stomata* evenly extended, longish.

"Length 30 mm.

Locality. West Indies."

This species, described from a single female, is unknown to me. In colour, which is perhaps one of the best specific characters for the genus, it appears to resemble closely the foregoing. On account, however, of its much greater size, I refrain from uniting the two.

Family SCOLOPENDRIDÆ.

The West-Indian genera of this family may be recognized as follows :—

- a. With 23 pairs of legs; eyes absent; tarso-metatarsi of most of the legs entire; prosternal plates of maxillipedes absent.
 - a¹. Anal legs without claw and with multi-articulated tarso-metatarsus; sulci of sterna cross-shaped, and of terga four in number. . . NEWPORTIA.
 - b¹. Anal legs normal; terga and sterna without sulci, or bisulcate.
 - a². Seventh somite without stigmata OTOCRYPTOPS.
 - b². Seventh somite with stigmata SCOLOPOCRYPTOPS.
- b. With 21 pairs of legs.
 - a³. Eyes absent; prosternal plates absent; tarso-metatarsi of most of the legs undivided; terga and sterna sulcate as in *Newportia*. CRYPTOPS.
 - b³. Four eyes on each side of the head; prosternal plates present; tarso-metatarsi of all the legs divided.
 - a⁴. The seventh segment with a pair of stigmata, the rest as in *Otostigma* . . RHYSIDA.
 - b⁴. The seventh segment without stigmata.
 - a⁵. Head-plate not overlapping the first tergite; stigmata small and sub-circular.
 - a⁶. Head not sulcate; basal plate invisible; anal legs long and slender, and with small claws . . OTOSTIGMA.
 - b⁶. Head sulcate; basal plate visible; anal legs shorter, very thick, with large claw CUPIPES.
 - b⁵. Head overlapping the first tergite; stigmata large or elongate SCOLOPENDRA.

3. *SCOLOPENDRA GIGANTEA*, *Linn.*

Scolopendra gigantea, *Linn. Syst. Nat.* ed. x. p. 638; *Newport, Porath, etc.*

Scolopendra gigas, *Leach, Tr. Linn. Soc.* xi. p. 383; *Newport, Kohlrausch, & Meinert.*

Scolopendra insignis, *Gervais, Ins. Apt.* iv. p. 279; *id. Voyage de Castelnau, Myriopoda*, p. 32, pl. v. fig. 1.

Scolopendra prasinipes, *Wood, P. Ac. Philad.* 1861, p. 11.

Scolopendra epileptica, *id. ibid.*

Locality. Jamaica (*Linné and Brit. Mus.*); St. Thomas (*Brit. Mus.*); Trinidad (*Meinert and Kohlrausch*). Occurs also in the northern parts of S. America.

4. *SCOLOPENDRA ANGULATA*, *Newport.*

Scolopendra angulata, *Newp. Ann. Mag. Nat. Hist.* xiii. p. 97 (1844); *id. Tr. Linn. Soc.* xix. p. 398 (1845); *id. Cat. Myr. Brit. Mus.* p. 47 (1856).

Scolopendra prasina, *C. Koch, Die Myr.* ii. p. 23, fig. 146 (1863); *Kohlrausch, Arch. Nat.* xlvii. p. 122 (1881); *Meinert, Proc. Am. Phil. Soc.* xxiii. p. 192; *Pocock, Ann. Mag. Nat. Hist.* (6) i. p. 338.

Scolopendra nitida, *Porath, Sv. Vet.-Ak. Handl.* iv. no. 7, p. 8.

The British Museum has this species from Trinidad and St. Vincent, where Mr. H. H. Smith obtained many specimens; Meinert has recorded it from Grenada. Occurs also on the mainland in Brazil, &c.

5. *SCOLOPENDRA ALTERNANS*, *Leach.*

Scolopendra alternans, *Leach, Tr. Linn. Soc.* xi. p. 383, *et auctt.*

Scolopendra Grayi, *complanata*, *incerta*, *multispinata*, *Newport, Tr. Linn. Soc.* xix. pp. 402-405.

Scolopendra sagraea, *Gervais, Ins. Apt.* iv. p. 281.

Scolopendra crudelis, *Koch, Die Myr.* ii. p. 36, figs. 158, 159; *Porath, Sv. Vet.-Akad. Handl.* iv. no. 7, p. 7; *Meinert, Proc. Am. Phil. Soc.* 1886, p. 194.

Scolopendra longipes, *Wood, Proc. Ac. Philad.* (2) v. p. 26.

Known from the following W. Indian Islands:—Cuba, San Domingo, St. Thomas, St. Bartholomew, St. Croix, Guadeloupe. The British Museum has specimens from Hayti, St. Kitts, St. Eustace, Antigua, Montserrat, and Dominica. Also met with in S. America.

6. *SCOLOPENDRA SUBSPINIPES*, *Leach.*

Scolopendra subspinipes, *Leach, Tr. Linn. Soc.* xi. p. 383; *and all authors.*

The British Museum has this species from Jamaica (*Cockerell*),

St. Croix, Antigua, Montserrat, Dominica, St. Vincent, and Barbados. It has also been recorded from Porto Rico, St. Bartholomew, and St. Kitts by Porath, from Marie Galante and Guadeloupe by Gervais, and quite recently from Trinidad by Daday.

Common in tropical parts of both hemispheres.

7. *SCOLOPENDRA MORSITANS*, Linn.

Scolopendra morsitans, Kohlrausch, *Arch. Nat.* 1881 (47), p. 104 *et auctt.*

Recorded from St. Bartholomew and St. Kitts by Porath, from Cuba and ? St. Domingo by Gervais. The British Museum has specimens from Jamaica and Hayti.

Like *S. subspinipes* this species is abundant in all tropical countries.

Scolopendra cubensis, Sauss. (Mém. Soc. Phys. Genève, xv. pp. 387–388, fig. 47 (1860), and Humbert and Saussure, *Miss. Sci. Mex.*, *Myriopoda*, p. 132), is probably referable to *S. morsitans*.

The foregoing species of *Scolopendra* are well known to those who have systematically studied the genus. The following synopsis may aid in the rapid identification of them :—

- a. The first tergite marked anteriorly with a deep transverse groove; patella on 2nd segment of the anal leg spined; head longitudinally bisulcate.
 - a¹. Sternites bisulcate; femora of all the legs apically spined *gigantea*, Linn.
 - b¹. Sternites not bisulcate; femora of only the last three pairs of legs (19th–21st) spined *angulata*, Newp.
- b. The first tergite not marked anteriorly with a sulcus; patella of anal leg unarmed.
 - a². Head-plate completely bisulcate; femora of 19th and 20th legs spined apically; femora of anal leg armed with upwards of 20–30 spines *alternans*, Leach.
 - b². Head not sulcate; femora of all the legs (except the anal) unarmed.
 - a³. Anal legs long and slender, armed beneath with 2 (3) spines *subspinipes*, Leach.
 - b³. Anal legs shorter and stouter, armed beneath with 9 spines *morsitans*, Linn.

8. *CUPIPES GUILDINGII* (*Newport*).

Cormocephalus Guildingii, *Newport*, *Tr. Linn. Soc.* xix. p. 425; *id. Cat. Myr. Brit. Mus.* p. 78 (1856).

Cormocephalus impressus, *Porath*, *Bih. Sv. Vet.-Akad. Handl.* iv. no. 7, p. 15 (1876).

Otostigma cormocephalinum, *Pocock*, *Ann. Mag. Nat. Hist.* (6) ii. p. 473, pl. xvi. fig. *a*; *id. op. cit.* vii. p. 53.

This species is widely distributed in the West Indies. *Porath* has recorded it from S. Domingo and St. Bartholomew. The British Museum has examples from St. Vincent (*H. H. Smith*), Dominica (*G. A. Ramage*), and Jamaica (*T. D. A. Cockerell*).

9. **CUPIPES LINEATUS* (*Newport*).

Cormocephalus lineatus, *Newport*, *Tr. Linn. Soc.* xix. p. 425; *id. Cat. Myr. Brit. Mus.* p. 77.

"Colour ochraceous.

"*Antennæ* very thick at the base, with the segments short as in *Geophilus*.

"The *coxæ* of the maxillipedes narrowed anteriorly and marked with a triangular impression; the dental plates are distinct and elongated, with an elevated median crest, armed with six sub-obsolete teeth, the external one more distinct.

"The dorsal surface marked with longitudinal elevated lines.

"The anal pleuræ punctured; the sternite cordate, with the posterior margin rounded. The anal legs clavate, rounded; the femoral segment rounded, conical, very short, much shorter than the patella, with a single minute spine at its posterior angle, without spines on its lower surface; all the segments marked above posteriorly with a deep longitudinal sulcus."

Length $1\frac{1}{2}$ inch (38 mm.).

Locality. St. Vincent (*Guilding*).

This species differs from *C. Guildingii* at least in the structure of its anal legs, for the femur of these appendages is described as much shorter than the patella and as having no spines on its lower surface.

10. **CUPIPES UNGULATUS*, *Meinert*, *Proc. Am. Phil. Soc.* 1886, p. 187.

This species, which has been recorded by *Meinert* from Grande Anse and Port au Prince in Hayti, as well as from Pernambuco, is, to judge from the description of it, closely

related to *C. Guildingii*. But it undoubtedly differs in having all the tergites except the last immarginate. It may be recognized from *C. lineatus* by the spine-armature of the femur.

11. OTOSTIGMA SPICULIFERUM, sp. n.

Colour a deep green throughout.

Body slender.

Head finely punctulate. Coxal plates of the maxillipedes contiguous, armed with four distinct sharp teeth, the process on the femur well developed and subdentate. Antennæ long, composed of 17 long cylindrical segments, of which the basal two are naked and the rest pubescent.

Tergites from about the 6th bisulcate and from the 9th marginate; the middle of the dorsum marked between the sulci with two longitudinal impressions, the lateral portions at the posterior end of the body wrinkled; the tergites in the posterior half of the body distinctly spicular.

The *sternites* not conspicuously bisulcate, anteriorly rugose, posteriorly marked with four abbreviated longitudinal impressions, two median, in a line, and one on each side.

Anal somite small; *tergite* spicular above, with a shallow posterior impression; *pleuræ* moderately inflated, porous almost throughout, the inferior posterior angle a little produced but rounded and not spined; *sternite* narrow, narrower posteriorly; *legs* very long and slender, without spines, the segments subcylindrical; the tarsus unspined; claw spurred.

Legs with proximal tarsal segment spurred.

Length about 40 mm., of anal leg 13 mm., of antenna 10 mm.

Locality. St. Vincent (*H. H. Smith*).

"Pretty common in decaying leaves and under bark; sometimes obtained by beating vines and branches."

12. *OTOSTIGMA OCCIDENTALE, *Meinert*, *Proc. Am. Phil. Soc.* 1886, pp. 185-186.

Locality. Grande Anse, Hayti (*Meinert*).

In its main characters this species is closely allied to the preceding. The differences, however, between the two may be easily tabulated as follows:—

- a. Antennæ composed of 21 shortish segments; the body posteriorly hirsute *occidentale*.
- b. Antennæ composed of 17 long segments; the body posteriorly spicular *spiculiferum*.

13. RHYSIDA LONGIPES, *Newport*.

Branchiostoma longipes, *Newport*, *Tr. Linn. Soc.* xix. p. 411.

The British Museum has a specimen of this species ticketed merely W. Indies. Meinert, however, recorded it from St. Croix and St. Kitts. It also occurs commonly in many parts of the Oriental Region. It may be readily recognized from the following species by the presence of spines upon the femora of the anal legs.

14. *RHYSIDA CELERIS (*Humb. & Sauss.*).

Branchiostoma celer[e], *Humb. & Sauss. Rev. Mag. Zool.* (2) xxii. p. 202; *ibid. Miss. Sci. Mex., Myr.* p. 122, pl. vi. fig. 16; *Kohl. Arch. Nat.* xlvii. p. 69; *Meinert, Proc. Am. Phil. Soc.* 1886, p. 183.

This species is unknown to me. Meinert has recorded it from Kingston in Jamaica. It was described by its original authors from Georgia in N. America.

In this species the femora of the anal legs are said to be unarmed.

15. CRYPTOPS BIVITTATUS, sp. n.

Colour: head, antennæ, anal somite, and legs a uniform ochraceous; dorsal region testaceous, with two parallel longitudinal black bands.

Head hairy, not sulcate, a little longer than wide; antennæ parallel-sided, composed of 14 segments, adorned with longer and shorter hairs.

Maxillary feet also hairy; the anterior border of the coxæ straight and furnished with 6 bristles.

First tergite marked in front with a conspicuous transverse sulcus, which is angular in the middle. The rest of the tergites shortly hairy, normally sulcate, the longitudinal sulci beginning on the 3rd. *Sternites* furnished with the ordinary cross-shaped sulci.

Anal somite: tergite with raised margins; pleuræ setiferous in front, smooth behind, with a few setæ on the hinder border; angle rounded; sternite with evenly rounded posterior border. *Legs* thick; the femur thicker posteriorly, shorter than the patella, not spined, but thickly clothed below with setiform hairs, its upper surface posteriorly sulcate, but the posterior border unarmed; the patella flat and smooth on the inside, furnished with setiform spines elsewhere, sulcate above; the tibia a little shorter than the femur, about half as long as the patella and

thinner, flat internally, the inferior surface slightly excavated in front, the inner edge of the lower surface armed with 4 or 5 short spiniform teeth; the tarsus shorter than the tibia, excavated in front below, and armed internally with two small teeth; metatarsus slender, cylindrical, longer than the tarsus, carinate below; claw of normal size.

Length about 15.5 mm.

Locality. St. Vincent (*H. H. Smith*).

16. OTOCRYPTOPS FERRUGINEUS (*Linn.*).

Scolopendra ferruginea, *Linn. Syst. Nat.* ed. 12, p. 1063; *De Geer, Mém. Hist. Ins.* vii p. 568, pl. 43. fig. 6.

Scolopocryptops ferrugineus, *Newport, Tr. Linn. Soc.* xix. p. 406 (1845); *id. Cat. Myr. Brit. Mus.* p. 56 (1856); *Karsch, Abh. Ver. Bremen*, xix. p. 66 (1884).

Scolopocryptops rufa, *Gervais, Ins. Apt.* iv. p. 297 (1847).

Scolopocryptops mexicanus, *Humb. & Sauss. Rev. Mag. Zool.* 1869, p. 158; *id. Myr. Miss. Sci. Mex.* p. 134, pl. vi. fig. 18 (1872); *Pocock, Ann. Mag. Nat. Hist.* (6) vi. p. 143 (1890).

Scolopocryptops sexspinosa, *Porath, Bih. Sv. Vet.-Akad. Handl.* 1876, no. 4, p. 26; *Kohlrausch, Arch. Nat.* 1881, p. 54 (in part); not syn. *sexspinosa* of Say.

Scolopocryptops bisulca, *Karsch, Abh. Ver. Bremen*, xix. p. 66 (1884).

Scolopocryptops Miersii, *Meinert, Pr. Am. Phil. Soc.* 1886, p. 181 (not syn. *Sc. Miersii* of Newport, *cf. supra*).

Scolopocryptops Meinerti, *Pocock, Ann. Mag. Nat. Hist.* (6) ii. p. 474 (1888).

This species has a wide distribution, being found on both sides of the Atlantic. Linnæus's type was from W. Africa, and Dr. Karsch has recorded it from Accra. Moreover the British Museum has a specimen ticketed W. Africa, and since this is not distinguishable specifically from *Sc. mexicanus* of Humb. & Sauss., I have been compelled to adopt the older name for the species.

But although occurring in Africa, the species seems to have its headquarters in the Neotropical Region; for it is abundantly distributed throughout Central America, the West Indies, and the northern parts of South America.

In the West Indies it is known from the following localities:—Hayti, Jamaica, and Martinique (*Meinert*); the British Museum has examples from Cuba, Jamaica (*T. D. A. Cockerell*), St. Vincent (*H. H. Smith*), and Dominica (*G. A. Ramage*).

No description of this species need be here added, for it has been well figured by de Saussure and described in detail by myself under the name of *Scolopocryptops Meinerti*.

17. OTOCRYPTOPS MELANOSTOMA (*Newport*).

Scolopocryptops melanostoma, *Newport*, *Tr. Linn. Soc.* xix. p. 406; *id. Cat. Myr. Brit. Mus.* p. 56.

Scolopocryptops melanos[t]oma, *Gervais*, *Ins. Apt.* iv. p. 298.

Scolopocryptops longiceps, *Pocock*, *Ann. Mag. Nat. Hist.* (6) viii. p. 160 (1891).

Scolopocryptops megacephalus, *Kohlrausch*, *Arch. Nat.* 1881, p. 57.

Body robust, attenuated posteriorly.

Colour fusco-castaneous or ochraceous above; head and maxillipedes castaneous.

Head longer than wide, nearly parallel-sided, its posterior angles rounded; coarsely punctured, and with simple margins. *Antennæ* only moderately long, composed of 17 segments, of which the basal two are naked.

Maxillipedes coarsely punctured; coxæ very wide, with anterior border widely and shallowly excavated, without teeth, but thickened; the femoral tooth large and conical.

Tergites smooth, polished, punctured, from the 3rd to the 21st bisulcate, and from the 7th to the 21st with raised margins.

Sternites punctured, not sulcate.

Anal somite small; *tergite* neither sulcate nor marginate; *pleuræ* not spined above, covered with larger and smaller pores, the process and posterior border only being smooth, the process very long; *sternite* posteriorly narrowed, its hinder border emarginate. *Legs* long, slightly pubescent distally; the spines of the femur large, the inferior one being especially long and strong; tarsus unarmed, claw not spurred.

Legs for the most part with tibial and tarsal spurs, the 22nd pair not spurred; all the claws without conspicuous basal spurs.

Length up to 60 mm.

Locality. St. Vincent (*H. H. Smith*).

The example measuring 60 mm. is the type of *Scolopocryptops longiceps* from Brazil; the example from St. Vincent is but 45 mm.

When I published the description of *Sc. longiceps* I had not seen an example of this genus from St. Vincent. But since Mr. H. H. Smith obtained a specimen from this island, whence Newport's type of *Sc. melanostoma* was recorded, I have decided

to recharacterize this specimen as *Otocryptops melanostoma*, although the original description of this species might well be applied to *O. ferrugineus*.

The two species may be readily distinguished thus:—

- a. Border of maxillary coxæ straight and dentate ;
claws of legs spurred &c. *ferrugineus* (Linn.).
- b. Border of maxillary coxæ emarginate and not
dentate ; claws without distinct spurs &c. ... *melanostoma* (Newp.).

18. SCOLOPOCRYPTOPS MIERSII, Newport.

Scolopocryptops Miersii, Newport, *Tr. Linn. Soc.* xix. p. 405 (1845) ;
id. Cat. Myr. Brit. Mus. p. 56 (1856). Not *Sc. Miersii*, Kohlrausch, *Arch. Nat.* 1881, p. 55 ; Meinert, *Proc. Am. Phil. Soc.* 1886, p. 181.

Colour piceo-castaneous, often with a distinctly olivaceous tint ; antennæ olivaceous ; legs ochraceo-olivaceous, smooth and shining. Body robust, attenuated posteriorly.

Head orbicular, as wide as long, with convex posterior border, somewhat coarsely punctured, without trace of sulci, and with margin simple.

Antennæ long, attenuated, and slender, composed of 17 segments, of which the basal three are naked, and the rest densely pubescent.

Coxæ of maxillipedes smooth, shining, punctured like the head, lightly wrinkled in front, the dental border straight, black, with a small tubercular tooth at each end of it ; the tooth on the femoral segment small, tubercular, and simple.

First tergite with a strong crescentic anterior transverse sulcus, punctured ; the rest of the tergites punctured, from the 8th or 10th bisulcate, and from the 8th with raised margins.

Sternites without sulci.

Anal somite small ; *tergite* punctulate, not sulcate, parallel-sided, its posterior border mesially produced, its lateral borders not elevated ; the *pleuræ* covered thickly and closely throughout with minute pores, the area surrounding the surface of articulation of the femur smooth and spiniform above, the pleural process robust and somewhat short, tipped with a single spine ; *sternite* posteriorly narrowed, twice as wide in front as behind, the angles rounded, the posterior border lightly emarginate. *Legs* long and slender, smooth, the segments subcylindrical, compressed, the spines on the femur evanescent, very small ; claw spurred at the base. Rest of the legs with spurred claws, a

tarso-metatarsal spine and an anterior and inferior spine at the distal end of the tibia.

Measurements in millims. of largest example.—Length 109, width of head 8·5, of 1st tergite 10·8, of 12th 11, of 23rd 5; length of antenna 31·5, of anal leg 33.

Locality. Santa Lucia, Fond de Jacques (*G. A. Ramage*).

Five examples were obtained at the above locality. The example of which the measurements are given above is the largest of the five, and is, moreover, much larger than any previously recorded example of this genus, or of *Otocryptops*. The second measures 107 mm., the third 91, the fourth 69, and the fifth 60. The third example is about the size of Newport's type, which was recorded from Brazil. In addition to the specimens here recorded the British Museum has one from Brazil that was ticketed *Miersii* by Newport himself, and a second from Rio. This is the first record of the genus from the West Indies. Kohlrausch in 1881, in his 'Monograph of the Scolopendridæ,' referred this species to *Otocryptops sexspinosus* (Say), but quite wrongly, and Meinert in 1886 fell into the error of supposing it to be the same as *Ot. mexicanus* of de Saussure.

18 a. * *SCOLOPOCRYPTOPS ANTILLARUM* (*Marsh*), *Trans. Ent. Soc.* 1878, p. xxxvii.

This species was recorded from Martinique, but since its author knew but little of the Scolopendridæ, it need scarcely be added that no opinion can be formed as to the validity of his species.

19. *NEWPORTIA LONGITARSIS* (*Newport*).

Scolopocryptops longitarsis, *Newp. Tr. Linn. Soc.* xix. p. 407, pl. xl. fig. 10 (1845).

Newportia longitarsis, *Gervais, Ins. Apt.* iv. p. 298.

Newportia longitarsis, *Newport, Cat. Myr. Brit. Mus.* p. 57 (1856).

Not *Newportia longitarsis*, *Bollman, P. U.S. Nat. Mus.* 1888, pp. 337, 338.

Colour ochraceous, head and maxillipes castaneous.

Head elongate, rounded posteriorly, without distinct sulci.

Antennæ shortish, robust, densely pubescent, lineate at the base. Maxillipedes with the anterior border of the coxæ not produced, nearly straight from side to side, with a very faint notch in the middle line. First tergite furnished in its anterior half with a transverse sulcus arched so as to form the segment of a circle. The rest of the tergites quadrisulcate as in *Cryptops*; the central area in addition marked each side with

two depressions which cause the middle line to appear lightly carinate.

The *sternites* marked with a median sulcus, and with a second sulcus on each side close to the lateral margin; the normal median transverse sulcus indistinct.

Anal somite: tergite with elevated margins, lightly depressed posteriorly; *pleuræ* porous, produced into a long, pointed, smooth process, which extends just beyond the level of the apex of the first spine of the femur; *sternite* elongate, narrowed posteriorly, lightly emarginate behind. *Legs* long and very hairy; the femur armed beneath with a series of four strong spines, also studded with spiniform hairs; the *patella* a little shorter and slenderer than the femur, armed internally in its proximal half with two smaller spines; the tibia as long as the patella, but slenderer, unarmed, these three segments notched above at their distal ends but not spined; the tarso-metatarsus almost as long as the rest of the leg, composed of eleven distinct longish cylindrical segments, these segments excepting the first one are subequal in length but the distal ones are narrower; the first segment is about half the length of the tibia, and as long as the two that succeed it.

Legs long, slender, and hairy, the 22nd pair extending almost to the posterior end of the patella of the anal leg.

Length 15 mm.; of anal leg 5·8 mm.

Locality. St. Vincent (*H. H. Smith*).

The example of this species that has been described above agrees closely with Newport's diagnosis of *N. longitarsis*. The type, however, was a very much larger specimen, for Newport gives $1\frac{3}{4}$ inches (44 mm.) as its total length.

Of the species of this genus established since Newport characterized *N. longitarsis*, the one that comes nearest to it is *N. monticola*, Pocock, from Chimborazo. The two are alike in the form of the sulcus on the first tergite, and of the anterior border of the coxæ of the maxillipedes, so also in the spine armature of the anal legs; but *N. monticola* may be readily recognized by the much greater length of the proximal segment of the tarso-metatarsus, which is almost as long as the tibia, and in the shortness of the tarsus and the fewness of its segments. Both the species differ from *N. dentata* in the shape of the sulcus of the first tergite, which is angular in the last named. *N. dentata* also has the maxillary coxæ produced forwards anteriorly.

20. *NEWPORTIA PUSILLA*, sp. n.

Colour: head and first tergite and anal tergite ochraceous; body dark green mottled with ochraceous; legs pale green; antennæ yellow.

Head hairy, punctured, not sulcate. Antennæ composed of seventeen short segments, shortly and thickly hairy. Maxillipedes hairy, anterior border of the coxæ straight with a median notch. First tergite with a strong arched groove running from the anterior angle on one side to that of the other, and reaching nearly to the middle of the plate; the longitudinal sulci invisible.

Terga and *sterna* normally sulcate.

Anal somite also normal, the pleuræ somewhat scantily porous. *Legs* hairy, with *femur* and *patella* about equal in length, the tibia a little shorter; the *tarso-metatarsus* composed of ten distinctly defined segments, of which the first is rather more than half the length of the tibia, the second being a little shorter and thinner than the first, as the third is with regard to the second; the seven distal segments shorter, the seventh ovate.

Length 10.5 mm.

Locality. St. Vincent (*H. H. Smith*).

This species, with its distinctly segmented anal tarsi and the large spines on the lower surface of the anal femur, falls into the same category with the three mentioned above. It may be recognized from them, however, by the presence of only three spines on the femur, and none on the patella of the anal leg.

21. *NEWPORTIA ERNSTII*, *Pocock, Ann. Mag. Nat. Hist.* (6) viii. pp. 161-163.

Locality. St. Vincent (*H. H. Smith*).

This species was originally described from a specimen received from Caraccas from Dr. Ernst; the Museum also has an example from Brazil. Consequently there is very little doubt that the species has been introduced into St. Vincent from the mainland of S. America.

It cannot be confounded with either of the preceding on account of the indistinctness and number of the segments of its anal tarsi, the spine armature of the anal legs, sulcation of head-plate and first tergite, &c.

22. **NEWPORTIA*, sp. n.

Newportia longitarsis, *Bollman, Proc. U.S. Nat. Mus.* 1888, pp. 337, 338.

Locality. Cuba.

I will not venture to propose a name for the Cuban species identified by Bollman as *N. longitarsis*. That it is not *longitarsis* I am persuaded, but whether or not it is one of the other species of the genus, the description of it is not sufficiently detailed to show. The border of the maxillary coxæ is not produced; the femora of the anal legs are armed with about twenty-two larger and smaller hooked spines arranged in four or five series, and the tibia with two long spines beneath.

Length 28 mm.

Family GEOPHILIDÆ.

Synopsis of the Genera.

- a. The basal plate very small, narrower than the head and first tergite, and wedged in between the head in front, the first tergite behind, and the pleuræ of the maxillipedes at the sides; the coxæ of the maxillipedes largely uncovered above by the pleuræ MECISTOCEPHALUS, Newp.
- b. The basal plate much larger and free, at least as wide as the head.
 - a¹. The pleural sclerites which bear the tracheæ in contact with the tergites; the porous areas situated along the posterior extremities of the sterna.
 - a². Basal plate narrowed anteriorly; antennæ long, slender, the segments longer than wide GEOPHILUS, Leach.
 - b². Basal plate as wide in front as behind; antennæ short, stout, the segments wider than long..... TÆNIOLINUM, nov.
 - b¹. The tracheal sclerites of the pleuræ separated from the tergites; porous areas not situated along the posterior borders of the sterna.
 - a³. With only one row of sclerites between the terga and the tracheal sclerites; the pleuræ of the anal segment very small; anal leg composed of 6 segments plus the pleura ORPHNÆUS, Mein.

- b*³. With more than one row of sclerites between the terga and the tracheal sclerites; anal leg composed of only 5 segments plus the pleura NOTIPHILIDES, Latr.

23. *MECISTOCEPHALUS GUILDINGII*, Newport.

Mecistocephalus Guildingii, Newport, *Tr. Linn. Soc.* xix. p. 429, pl. xxxiii. fig. 18; *Meinert, Nat. Tidskr.* (3) vii. p. 96.

This species was originally described from St. Vincent, but Mr. Smith did not rediscover it in this island. Mr. Cockerell has sent it to the British Museum from Jamaica; Mr. Bollman has recorded it from Cuba, and Meinert from St. Croix.

By some authors, *e.g.* Meinert and Bollman, this species is regarded as synonymous with the Oriental form *M. punctifrons*, which it resembles in having forty-nine pairs of legs. All the Neotropical examples, however, that I have seen are smaller and paler coloured than *M. punctifrons*, and seem to have the head considerably narrower.

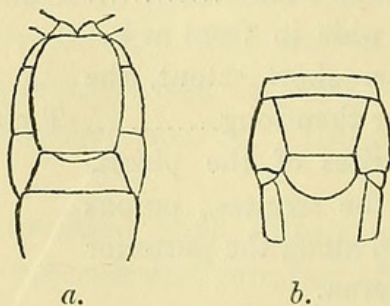
24. *GEOPHILUS TENUITARSIS*, Pocock.

Geophilus tenuitarsis, Pocock, *Ann. Mag. Nat. Hist.* (6) ii. pp. 475, 476, pl. xvi. fig. c.

Locality. Dominica (*G. A. Ramage*).

25. *GEOPHILUS MUSTIQUENSIS*, sp. n.

Colour ochraceous, with the head pale castaneous; the dorsal surface in one specimen clouded with fuscous.



Geophilus mustiquensis, sp. n.

a. Head from above. *b.* Anal segment from below.

Head only a little longer than wide, sparsely punctured, and lightly bi-impressed. *Antennæ* of moderate length and thickness,

hirsute ; the segments slightly narrowed at the base, the apical a little longer than the penultimate.

The *prebasal plate* just visible ; the *basal plate* about twice as wide as long, a little narrower than the head in front, and narrower than the first tergite behind.

Coxal plate of the maxillipedes considerably overlapped posteriorly on each side by the pleuræ, about as wide as long, sparsely punctured, the anterior border emarginate, considerably overlapping the head-plate at the sides ; the jaws moderately long, the claw a little overlapping the head-plate in front, but the joint of it falling considerably short of the basal joint of the antenna.

Tergites smooth, somewhat strongly bisulcate.

Sternites smooth, but mesially impressed.

Anal somite: tergite wide, almost completely covering the pleuræ ; *pleuræ* smooth and not porous ; *sternite* wide, wider than long. Legs slender, hairy, not much longer than the preceding pair, without a claw, or at most with a very minute one ; in ♂ distinctly thicker.

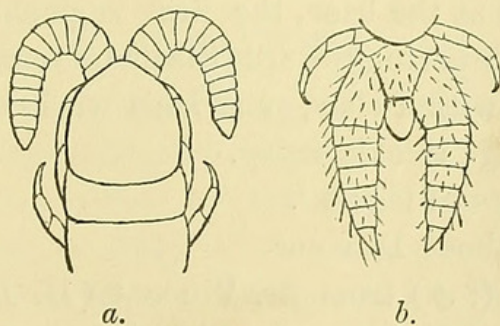
Number of pairs of legs, ♀ 49, ♂ 45.

Length up to about 31 mm.

Locality. Mustique Island (*H. H. Smith*).

"Under rubbish in damp places."

This species may be readily recognized from *G. tenuitarsis* by the much smaller number of its legs, *G. tenuitarsis* having as many as eighty-five pairs.



Taniolium setosum, gen. & sp. n.

a. Head from above. b. Anal segment from below.

TANIOLINUM, gen. nov.

Head orbicular, nearly covering the maxillipedes ; *antennæ* very short and stout. *Prebasal plate* invisible ; *basal plate* as

wide as the head and the first tergite, about twice as wide as long. *Maxillipedes* weak. *Tracheal* sclerites in contact with the tergites. *Porous area* apparently situated transversely upon the posterior portion of the sternites.

In the form of the head, basal plate, and antennæ this genus seems to resemble *Orphnæus*, but it differs very markedly from it in the structure of the anal somite, with its large pleuræ, thick legs, &c.; moreover the tracheal sclerites are in contact with the tergites.

In the position of its sternal pores it resembles *Geophilus*, but it may be readily recognized by its short thick antennæ, wide basal plate, &c.

26. TÆNIOLINUM SETOSUM, sp. n.

Head thickly setose; *antennæ* with their segments wider than long, the apical conical. The coxæ of the *maxillipedes* largely overlapped on each side by the pleural sclerites; without chitinous lines, the anterior border lightly emarginate; femora short, unarmed, the joint of the claw falling far short of the anterior border of the head. *Tergites* thickly hairy, not bisulcate. *Sternites* also hairy..

Anal somite setose, wide, the tergite as wide as that of the preceding; leg-bearing somite like a half-moon, with the convexity posterior; *pleuræ* large, projecting laterally far beyond the margin of the tergite, without pores above, but possibly porous close to and beneath the sternite, densely hairy; *sternite* of moderate size, triangular, with truncated posterior end. *Legs* enormously stout at the base, the first segment as wide as the pleura, gradually tapering towards the distal segment, compressed, hairy, not tipped with a claw, or at least with only a minute one. The rest of the legs thickly hairy.

Number of pairs of legs 49.

Length up to about 13 mm.

Two examples (? ♂) from St. Vincent (*H. H. Smith*), one at an altitude of 1500 ft., the other in moss in the forest at an elevation of 3000 ft.

27. ORPHNÆUS BREVILABIATUS (*Newport*).

Geophilus brevilabius, *Newport*, *Tr. Linn. Soc.* xix. p. 436, no. 9 (1845).

Geophilus lineatus, *id. ibid.* no. 10.

Geophilus bilineatus, *Peters, Reise Mossam., Ins.* p. 531, pl. xxiii. fig. 4.

Orphnæus lividus, *Meinert, Nat. Tidskr.* (3) vii. p. 19.

Orphnæus brasiliensis, *id. ibid.* p. 20.

Orya xanti, *Tömösvary, Term. füzetek*, ix. p. 64 (1885).

This species is found in all tropical countries, and is perhaps the commonest in collections of all exotic Geophilidæ.

Mr. Bollman has recorded it from Cuba, and Mr. Cockerell has sent it to the British Museum from Jamaica.

28. NOTIPHILIDES MAXIMILIANI (*Humb. & Sauss.*).

Notiphilus Maximiliani, *Humb. & Sauss. Rev. et Mag. Zool.* (2) xxii. p. 205; *id. Etudes sur les Myr.* p. 141, pl. vi. fig. 22.

Notiphilides Maximiliani, *Latzel, Die Myr. Oest.-Ung. Monarchie*, i. p. 20; *Meinert, Proc. Am. Phil. Soc.* 1886, p. 233.

An example of this species, which has hitherto been recorded only from Central America, has been sent to the British Museum from Trinidad.

Contributions to our Knowledge of the Arthropod Fauna of the West Indies.—Part III. Diplopoda and Malacopoda, with a Supplement on the Arachnida of the Class Pedipalpi. By R. I. Pocock, of the Natural History Museum. (Communicated by W. PERCY SLADEN, Sec. Linn. Soc.)

[Read 16th March, 1893.]

(PLATES XXXVII.-XL.)

I. DIPLOPODA.

UNDOUBTEDLY the most interesting and important feature in the Antillean Diplopod fauna brought to light by the collectors employed by the Committee for the Exploration of the Lesser Antilles (*vide antea*, p. 374) is the discovery, or rather re-discovery, of *Glomeridesmus*. This genus has been a puzzle to systematists for upwards of half a century, no one having been able to assign to it a position in any of the recognized families. There is no doubt, however, that it should constitute a distinct family of its own, occupying a position between the groups to which I have given the names *Oniscomorpha* and *Helminthomorpha*. Its affinities, nevertheless, appear to be rather with the former than with the latter, on account of the absence of



Pocock, R. I. 1893. "Contributions to our Knowledge of the Arthropod Fauna of the West Indies.-Part II. Chilopoda." *The Journal of the Linnean Society of London. Zoology* 24(156), 454-473.

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