

THE CENTIPEDS OF CENTRAL AMERICA.

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This paper is primarily a report upon the centipeds from the Central American region contained in the collections of the United States National Museum. Surprisingly little has been done upon the centiped and milliped fauna of this region; and that our knowledge is still far from complete is amply attested by the percentage of new forms appearing in each additional collection studied, this being especially noticeable in the case of the much more numerous millipeds with their more restricted distributions. The millipeds will be treated in a separate report to follow. The centipeds now known from the several countries of the region under consideration are listed separately below.

PANAMA.

- Scolopocryptops miersii* Newport.
- Rhysida nuda* (Newport).
- Cupipes unguatus* Meinert.
- Scolopendra subspinipes* Leach.
- Scolopendra morsitans* Linnaeus.
- Pselliodes nigrovittatus* (Meinert).
- Orphnacus brevilabiatus* (Newport).

COSTA RICA.

- Cryptops bivittatus* Pocock.
- Otocryptops melanostomus* (Newport).
- Newportia longitarsis* (Newport).
- Newportia rogersi* Pocock.
- Otostigmus denticulatus* (Pocock).
- Otostigmus scabricaudus* (Humbert and Saussure).
- Rhysida nuda* (Newport).
- Rysida longipes* (Newport).
- Scolopendra viridis* Say.
- Scutigera linceci* Wood.
- Scutigera nubila*, new species.
- Labrobium costaricensis* (Brölemann).
- Notiphilides maximiliani* (Humbert and Saussure).

NICARAGUA.

- Otocryptops melanostomus* (Newport).
Rhysida nuda (Newport).
Rhysida celeris (Humbert and Saussure).
Scolopendra viridis Say.
Scutigera lincei Wood.
Orphnaeus brevilabiatus (Newport).

SAN SALVADOR.

No centipeds recorded.

HONDURAS.

- Cryptops pugnans*, new species.
Otocryptops ferrugineus (Linnaeus).
Otocryptops melanostomus (Newport).
Newportia stollii (Pocock).
Newportia mimetica, new species.
Newportia sulana, new species.
Scolopendra viridis Say.
Scolopendra gigantea Linnaeus.
Scolopendra polymorpha gaumeri Pocock.
Ityphilus ceibanus, new species.
Tanophilus hondurasanus, new species.
Orphnaeus brevilabiatus (Newport).
Suturodes tardus, new species.

BRITISH HONDURAS.

- Rhysida nuda* (Newport).
Scolopendra sumichrasti Saussure.
Scolopendra polymorpha gaumeri Pocock.
Scolopendra morsitans Linnaeus.

GUATEMALA.

- Cryptops micrus*, new species.
Otocryptops ferrugineus (Linnaeus).
Otocryptops melanostomus (Newport).
Newportia stollii Pocock.
Newportia divergens, new species.
Otostigmus denticulatus (Pocock).
Rhysida nuda (Newport).
Cormocephalus aurantiipes (Newport).
Scolopendra sumichrasti Saussure.
Scolopendra viridis Say.
Scutigera lincei Wood.
Labrobium vulcani (Pocock).
Labrobium cobulcanus, new species.
Sowubius stollii (Pocock).
Sotimpus decodontus (Pocock).
Sogolabis scapheus Chamberlin.
Schendylellus hodites Chamberlin.
Sogodes difficilis, new species.
Orphnaeus brevilabiatus (Newport).
Notiphilides maximiliani (Humbert and Saussure).
Suturodes guatemalae, new species.
Suturodes stollii (Pocock).

The United States National Museum material studied is chiefly from Honduras, collected by Dr. W. M. Mann, and from Guatemala, collected by Dr. O. F. Cook and G. P. Goll. Eleven of the 12 new forms described are from these two countries. The total number of species listed is 43.

Order SCOLOPENDROMORPHA.

Family CRYPTOPIDAE.

Genus CRYPTOPS Leach.

1. CRYPTOPS BIVITATTUS Pocock.

Cryptops bivittatus Pocock, Journ. Linn. Soc. London, 1894, vol. 24, p. 462.—
KRAEPELIN, Revision der Scolopend., 1903, p. 50.

Locality.—Costa Rica.

2. CRYPTOPS MICRUS, new species.

Plate 1, fig. 2.

In the type of this species the basal plate overlaps the cephalic. Cephalic plate with paired longitudinal sulci. Basal plate with semicircular cervical groove and paired longitudinal sulci. Anterior margin of prosternum gently doubly bowed. Sulci of anterior plates complete. Last ventral plate with sides straight and converging caudad. Coxopleuræ not produced caudad; pores few, only about four on each side in the type.

Characterized particularly by features of the anal legs. In these the femur wholly lacks teeth and true spines and the tibia has only a single tooth at distal end beneath. Both femur and tibia bear ventrally numerous stout setae, with sparse fine hairs above. Metatarsus with four teeth below and the first tarsal joint with two. Tibia and first tarsal joint furrowed and notched at distal end above.

Length, about 10 mm.

Locality.—Guatemala: Trece Aguas, one specimen, June, 1907 (O. F. Cook).

Type.—Cat. No. 24118, U.S.N.M.

3. CRYPTOPS PUGNANS, new species.

Among American forms similar to the Cuban *C. cornifer* Chamberlin and the Argentinian *C. galathea* Meinert in having paired sulci extending over the full length of the cephalic plate. It agrees with *C. cornifer* in having the first dorsal plate with a transverse sulcus that is evenly curved, not at all angled at the middle, which the paired and parallel longitudinal sulci attain but do not cross. Prosternal margin doubly convex; bristles 7+7. Tarsi distinctly biarticulate, excepting a few of the most anterior. Last ventral

plate with sides converging, its caudal margin widely incurved. Coxopleuræ not produced caudally; pores moderate in number. Femur of anal legs armed below and laterally with numerous spines excepting a median longitudinal naked area below, as in *C. cornifer*; sulcate above, at distal end, with a stout curved spine on mesal side. Tibia also with slender spines beneath; at distal end above with two stout spines. Metatarsus similarly with two stout spines at distal end above and with seven teeth beneath. First tarsal joint with three teeth beneath. Proximal joints of penult and preceding legs also with numerous spines beneath. Tibiæ and metatarsi of penult legs subdensely setose beneath, the former also with some spines.

Length, 15.5 mm.

Locality.—Honduras: Progreso, one specimen (W. M. Mann).

Type.—Cat. No. 24119, U.S.N.M.

A smaller form than the Cuban *C. cornifer* Chamberlin, to which it seems most closely related. It differs in its biarticulate tarsi, the presence of two stout spines at distal end of tibia of anal legs instead of one, of seven teeth below on metatarsus instead of ten, etc.

Genus OTOCRYPTOPS Haase.

4. OTOCRYPTOPS FERRUGINEUS (Linnaeus).

Scolopendra ferruginca LINNAEUS, Syst. Nat., ed. 12, 1766, p. 1063.

Otocryptops ferrugineus KRAEPELIN, Revision der Scolopend., 1903, p. 72.

Localities.—Honduras: Choloma, one specimen (W. M. Mann); Guatemala.

5. OTOCRYPTOPS MELANOSTOMUS (Newport).

Scolopocryptops melanostomus NEWPORT, Trans. Linn. Soc. London, 1844, vol. 19, p. 406.

Otocryptops melanostoma POCK, Journ. Linn. Soc. London, 1894, vol. 24, p. 464.

Localities.—Costa Rica: Rio Reventazon (P. P. Calvert), La Palma, and Surubres; Nicaragua; Honduras: San Juan Pueblo, three specimens (W. M. Mann); Guatemala: near Guatemala city.

Genus SCOLOPOCRYPTOPS Newport.

6. SCOLOPOCRYPTOPS MIERSII Newport.

Scolopocryptops miersii NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 405.

Locality.—Panama.

Genus NEWPORTIA Gervais.

7. NEWPORTIA STOLLI (Pocock).

Scolopendrides stollii POCK, Biol. centr. Amer., 1896, p. 31, pl. 3, fig. 4.

Newportia stollii KRAEPELIN, Revis. der Scolopend., 1903, p. 85.

Localities.—Honduras: Progreso, one specimen (W. M. Mann); Guatemala: Quetzaltenango.

The specimen from Honduras is referred with some doubt to this species, as the anal legs are missing. It may possibly, instead, represent the form *N. sulana*, new species, described below.

8. NEWPORTIA LONGITARSIS (Newport).

Scolopocryptops longitarsis NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 407, pl. 40, fig. 10.

Newportia longitarsis GERVAIS, in Ins. Apt., 1847, vol. 4, p. 298.

Locality.—Costa Rica: Reventazon Valley, Juan Viñas (P. P. Calvert).

9. NEWPORTIA ROGERSI Pocock.

Newportia rogersi POCOCK, Biol. Centr. Amer., Chilopoda, 1896, p. 33, pl. 3, figs. 6-6d.

Localities.—Costa Rica: Volcan de Irazu, Cocos, San José.

10. NEWPORTIA MIMETICA, new species.

This species is close to the Guatemalan *N. stolli* (Pocock). As in that species, the head has paired longitudinal sulci extending from the caudal margin forward to or a little beyond the middle; these sulci not connected posteriorly by any transverse line. Cervical sulcus evenly curved, in the types covered by the cephalic plate or free only at the middle. Paired sulci of first plate parallel and unbranched, extending forward in front of transverse sulcus. Paired sulci extending across anterior third of second tergite, but complete on the others to the twenty-second, inclusive. Last tergite without a median sulcus. Prosternum with dental plates short and broad, convex. Last tergite without a median sulcus. Tarsi undivided excepting in last two pairs of legs. Tibiae of anterior legs armed beneath at distal end but not laterally. Last ventral plate with sides converging caudad, caudal margin mesally incurved, corners rounded. Coxopleural processes nearly glabrous, lacking the pilosity on external side present in *N. stolli* and *N. sulana*. Anal and penult legs also with but very few hairs on mesal surface in contrast with the condition in *N. stolli*.

The general form of the anal legs as in *N. stolli*, the tarsal division similarly proportioned and without claw. Femur of anal legs flattened within; lower edge typically with five distally curved teeth, of which the two anterior ones are smaller; upper edge with a number of points or spinules, and below them, on mesal surface, some still more minute points or prickles. Differing from *N. stolli* in having the two ventral teeth of the tibia situated one well behind the middle and one in front of it instead of both being in front of it.

Length, 15-19 mm.

Locality.—Honduras: Lombardia, three specimens (W. M. Mann).

Type.—Cat. No. 24120, U.S.N.M.

In one of the paratypes the head plate is abnormally widely overlapped by the first tergite.

11. *NEWPORTIA DIVERGENS*, new species.

· Plate 1, fig. 1.

Head with paired sulci extending forward to middle, these not connected across base. The first dorsal plate differs from that of the related *N. stolli* and *N. sulana* and *N. mimetica*, as well as the less closely related forms, in not having the cervical or transverse sulcus cross the middle; that is, the segment of the sulcus between the paired sulci is missing, the paired sulci being thus, in effect, bifurcate, the main branch continuing forward and the other curving ectocephalad.

The characters of the posterior legs essentially as in *N. stolli*, the spining and hair being the same, or nearly so, though the minute spinules on the mesal face of the femur appear to be more numerous and more evenly distributed. The spinules or teeth on the tibia vary considerably. While typically two in number on the proximal half, a third may be present on the distal half and the spinules larger in size, and, on the other hand, in one specimen there is but a single spine on one of the legs.

Length, about 27 mm.

Locality.—Guatemala: Joyabaj, San Rafael, nine specimens (O. F. Cook, 1906 and 1914).

Type.—Cat. No. 24121, U.S.N.M.

12. *NEWPORTIA SULANA*, new species.

Plate 1, fig. 3.

Agreeing in general with *N. stolli*, thus far with certainty known from only a single specimen taken at Quetzaltenango, Guatemala, excepting that the tarsus of the anal legs ends in a distinct, though straight, claw, as in *N. amazonica* Brölemann. The posterior pairs of legs are densely pilose over the mesal (caudal) surface and the coxo-pleural processes are also pilose ectally and above.

Length, 21.5 mm.

Locality.—Honduras: San Pedro, Sula, one complete specimen and two specimens lacking anal legs (W. M. Mann).

Type.—No. 24122, U.S.N.M.

Analogy with *N. amazonica* Brölemann and *N. unguifer* Chamberlin, both known from numerous specimens, indicates that the claw in the present form is likewise a constant character.

Family OTOSTIGMIDAE.

Genus OTOSTIGMUS Porat.

13. OTOSTIGMUS DENTICULATUS (Pocock).

Parotostigmus denticulatus POCOCK, Biol. Centr. Amer., Chilopoda, 1896, p. 25.

Otostigmus denticulatus KRAEPELIN, Revis. der Scolopend., 1903, p. 124.

Localities.—Costa Rica: San José; Guatemala.

14. OTOSTIGMUS SCABRICAUDUS (Humbert and Saussure).

Branchiostoma scabricauda HUMBERT and SAUSSURE, Rev. et Mag. Zool., 1870, vol. 22, p. 203.

Otostigmus scabricaudus KRAEPELIN, Revis. der Scolopend., 1903, p. 123, fig. 61.

Localities.—Costa Rica: San Mateo, Cocos.

Genus RHYSIDA Wood.

15. RHYSIDA NUDA (Newport).

Branchiostoma nudum NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 412.

Rhysida nuda KRAEPELIN, Revis. der Scolopend., 1903, p. 144.

Localities.—Panama: Volcan de Chiriqui, Oriental region; Nicaragua: Greytown; Costa Rica: San José; British Honduras: Stann Creek, Belize (Robertson).

16. RHYSIDA LONGIPES (Newport).

Branchiostoma longipes NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 411.

Rhysida longipes POCOCK, Biol. Centr. Amer., Chilopoda, 1896, p. 27.

Locality.—"Central America."

17. RHYSIDA CELERIS (Humbert and Saussure).

Branchiostoma celer HUMBERT and SAUSSURE, Rev. et Mag. Zool., ser. 2, vol. 22, p. 202.

Rhysida celeris KRAEPELIN, Revis. der Scolopend., 1903, p. 149.

Locality.—Nicaragua (McNeil coll.).

Family SCOLOPENDRIDAE.

Genus CUIPIPES Kohlrausch.

18. CUIPIPES UNGULATUS Meinert.

Cupipes ungulatus Proc. Amer. Philos. Soc., 1886, vol. 23, p. 187.

Locality.—Panama.

Genus CORMOCEPHALUS Newport.

19. CORMOCEPHALUS AURANTIPIPES (Newport).

Scolopendra aurantiipes NEWPORT, Ann. and Mag. Nat. Hist., 1844, vol. 13, p. 99.

Cormocephalus aurantiipes NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 420.

Locality.—Guatemala (F. M. Müller).

A single specimen in the collection of the Museum of Comparative Zoology labeled as coming from Guatemala is this form. It had probably escaped from some ship, as the species is characteristically Australian.

Genus SCOLOPENDRA Linnaeus.

20. SCOLOPENDRA GIGANTEA Linnaeus.

Scolopendra gigantea LINNAEUS, Syst. Nat., ed. 10, 1758, p. 638.

Locality.—Honduras.

21. SCOLOPENDRA SUMICHRASTI Saussure.

Scolopendra sumichrasti SAUSSURE, Mém. Soc. Phys. Genève, 1860, vol. 15, p. 385, pl. 7, fig. 46.

Localities.—British Honduras: Belize; Guatemala: Tucuru, in Vera Paz, Livingston.

22. SCOLOPENDRA POLYMORPHA GAUMERI Pocock.

Scolopendra polymorpha gaumeri POCOCK, Biol. Centr. Amer., Chilopoda, 1895, p. 20.

Localities.—Honduras: Bonaca Island, in Bay of Honduras; British Honduras.

23. SCOLOPENDRA VIRIDIS Say.

Scolopendra viridis SAY, Proc. Acad. Nat. Sci. Philadelphia, 1821, p. 110.

Scolopendra nicaraguensis BOLLMAN, Bull. U. S. Nat. Mus., 1893, No. 46, p. 198.

Localities.—Costa Rica: Juan Viñas (P. P. Calvert), Caché; Nicaragua: Ocotal (W. B. Richardson, Dr. Bransford); Honduras (C. H. Townsend); Guatemala: Quetzaltenango, Volcan de Pacaya, Guatemala city, Antigua, San Miguel Upsantan.

24. SCOLOPENDRA MORSITANS Linnaeus.

Scolopendra morsitans LINNAEUS, Syst. Nat., ed. 10, 1758, p. 638.

Localities.—Panama; British Honduras: Belize (W. A. Stanton), St. Johns College (Wm. Bennett).

25. SCOLOPENDRA SUBSPINIPES Leach.

Scolopendra subspinipes LEACH, Trans. Linn. Soc., 1814–15, vol. 11, p. 383.

Locality.—Panama: Canal Zone, Tabernilla.

Order SCUTIGEROMORPHA.

Family SCUTIGERIDAE.

Genus PSELLIODES Chamberlin.

26. PSELLIODES NIGROVITTATA (Meinert).

Scutigera nigrovittata MEINERT, Proc. Amer. Philos. Soc., 1886, vol. 23, p. 173.

Locality.—Panama. This is the type locality for the species.

Genus SCUTIGERA Lamarck.

27. SCUTIGERA LINCECI Wood.

Scutigera linceci Wood, Proc. Acad. Sci. Philadelphia, 1867, p. 42.

28. SCUTIGERA NUBILA, new species.

Plate 1, figs. 4 and 5.

The dorsum is fuscous throughout, without any distinct median paler stripe, though the tergites appear a little darker on the sides than along the middle. The legs are blackish with an indistinct and incomplete paler annulus over middle of femur and tibia and with a vaguer annulus at base of latter on some legs. Articles of antennae very short, much broader than long, first division of flagellum consisting of 79 articles. Head deeply depressed over posterior median region, the depression somewhat furcate between eyes. A shallower median longitudinal furrow on anterior part of head. The stoma-bearing tergites notched or incurved at middle behind, the stoma slightly projecting caudad. Stoma saddles moderately elevated, the stomata of moderate length, on caudal slope of saddles. Last tergite with caudal margin flattened at middle, but not at all excised. Dorsal surface bearing numerous short, slender spines or spiniform setae, all unaccompanied by finer hairs. The slender spines numerous on margins, more sparse over the general surface.

The body of the type is injured at the caudal end, so that the genital forceps cannot be described.

First division of tarsus I composed of 14 articles, the second of 32. First tarsus of seventh legs with 10 articles, the second with 30. First tarsus unspined distally. Second tarsus of anterior legs with pegs beneath in typical manner. Spines present at distal end of tarsus I in median and posterior legs.

Length, 17.5 mm.

Locality.—Costa Rica: Turrialba, one specimen (C. Lankester).

Type.—Cat. No. 24123, U.S.N.M.

Order LITHOBIOMORPHA.

Family GOSIBIIDAE.

Genus LABROBIUS Chamberlin.

29. LABROBIUS VULCANI (Pocock).

Lithobius vulcani Pocock, Biol. Centr. Amer., Chilopoda, 1895, p. 8, pl. 1, figs. 8–8b.

Labrobium vulcani Chamberlin, Bull. Mus. Comp. Zool., 1915, vol. 59, p. 536.

Locality.—Guatemala: Volcan de Agua.

30. LABROBIUS COSTARICENSIS (Brölemann).

Lithobius vulcani costaricensis BRÖLEMANN, Ann. Soc. Ent. France, 1905, p. 339.

Locality.—Costa Rica: El Reventado.

31. LABROBIUS COBULCANUS, new species.

Plate 1, figs. 6 and 7.

This form is separated chiefly on the characters of the prosternum. This differs from *L. vulcani* (Pocock) in lacking the stout outer third tooth on each side of the prosternum. The prosternal margin extends out horizontally considerably beyond the ectal tooth, much as in *L. minor* Chamberlin; the edge a little ectad of the outer tooth is produced cephalad, the special ectal seta being borne upon the prominence, as shown in figure 6. Articles of antennae, 33 to 39. Ventral spines of penult legs, 0, 1, 3, 3, 1-0, 1, 3, 3, 2, with three claws. Claw of female genital forceps entire; basal spines 2+2, rather stout (fig. 7). Color, chestnut.

Length, 16 mm.

Locality.—Guatemala: Joyabaj, lower slope of Cobulco Mountain, two females, both of which have lost their anal legs (O. F. Cook).

Type.—Cat. No. 24124, U.S.N.M.

Genus SOWUBIUS Chamberlin.

32. SOWUBIUS STOLLI (Pocock).

Lithobius stolli POCOCK, Biol. Centr. Amer., Chilopoda, 1895, p. 9, pl. 1, figs. 10-10c.

Sowubius stolli CHAMBERLIN, Canad. Ent., 1912, p. 178.

Locality.—Guatemala: Volcan de Agua.

Genus SOTIMPIUS Chamberlin.

33. SOTIMPIUS DECODONTUS (Pocock).

Lithobius decodontus POCOCK, Biol. Centr. Amer., Chilopoda, 1895, p. 9, pl. 1, figs. 9-9b.

Sotimpilus decodontus CHAMBERLIN, Canad. Ent., 1912, p. 177.

Locality.—Guatemala: Volcan de Acatenango.

Order GEOPHILOMORPHA.

Family SCHENDYLIDAE.

Genus SOGOLABIS Chamberlin.

34. SOGOLABIS SCAPHEUS Chamberlin.

Sogolabis scapheus CHAMBERLIN, Psyche, 1920, vol. 27, p. 64.

Locality.—Guatemala: Coban.

The type of this species was taken actually at Washington, District of Columbia, but from soil about roots of the pacaya or salad palm (*Chamaedorea*) at quarantine, imported from Coban.

Genus **SCHENDYLELLUS** Chamberlin.35. **SCHENDYLELLUS HODITES** Chamberlin.

Schendylellus hodites CHAMBERLIN, Psyche, 1920, vol. 27, p. 65.

Locality.—Guatemala: Coban.

The type was also taken at quarantine in Washington, District of Columbia, from about roots of the *Chamaedorea* imported from Coban.

SOGODES, new genus.

Labrum having the wide median arc armed with chitinous teeth. Claw of palpus of second maxillæ smooth. No ventral pores. Coxal glands of last pediferous segment two on each side, these simple or homogeneous. Last ventral plate wide. Anal leg composed of a total of seven articles, the last ending in a well-developed claw.

Genotype.—*Sogodes difficilis*, new species.

In the presence of a claw on the anal legs resembling *Nyctunguis*, the species of which occur along the Californian coast, but differing in lacking ventral pores and in having the claw of the second maxillæ smooth.

36. **SOGODES DIFFICILIS**, new species.

Plate 2, figs. 1 and 2.

Color, pale fulvous. Head slightly wider than long; widest behind middle, from where narrowed to caudal end and also forward; anterior margin weakly angular; caudal margin wide, slightly incurved (fig. 1). Antennae short, filiform; joints mostly short, especially the more distal ones, excepting the ultimate, which equals the three preceding ones in length. Prebasal plate exposed at middle. Basal plate four times as wide as long. Claws of prehensors, when closed, much short of attaining anterior margin of head; the prehensors being very short, the mesal margin of femuroid extending but little beyond margin of prosternum; all joints unarmed. Prosternum unarmed; chitinous lines present, fine. First legs much shorter than the second, the second but little shorter than the third. Dorsum bisulcate. Coxopleuræ of last legs with two simple glands on each side, the anterior pore smaller than the posterior (fig. 2). Last ventral plate broad, narrowed caudad. Pairs of legs, 63.

Length, 13 mm.

Locality.—Guatemala: San Rafael, one specimen, June 4, 1914 (O. F. Cook).

Type.—Cat. No. 24125, U.S.N.M.

Family BALLOPHILIDAE.

Genus ITYPHILUS Cook.

37. ITYPHILUS CEIBANUS, new species.

Plate 3, fig. 1.

Distinguishable from *I. guianensis* Chamberlin, of British Guiana, in the much larger number of pairs of legs, though the total number of pairs of legs is not ascertainable because the caudal end of the type is missing. Sixty-nine pairs are now present in the incomplete specimen, as against a total of from 49 to 55 in *guianensis*. From *I. lilacinus* Cook, of the Florida keys, the only other known species, it differs in the form of the cephalic plate, this being longer than wide instead of wider than long. The second tergite is broader and rather shorter as compared with the first, these two being slightly wider than the cephalic plate and obviously wider than the immediately following tergites. The antennae more strongly clavate and flattened than in *lilacinus*, with the ultimate article less acuminate; strongly geniculate. Prosternum essentially as in *lilacinus*.

Length of incomplete type (head+69 segments), 20 mm.

Locality.—Honduras: La Ceiba (W. M. Mann).

Type.—No. 24126, U.S.N.M.

TANOPHILUS, new genus.

Agrees with *Ballophilus* and differs from *Ityphilus* in having the ventral pores in a definite, transversely elliptical area which is more strongly chitinized and elevated above the general surface of the sternite. May be distinguished from *Ballophilus* and *Prionothalthybius* in having only a single large pit on each coxopleura of last pediferous segment, several smaller pores opening into each pit.

Genotype.—*Tanophilus hondurasanus*, new species.

38. TANOPHILUS HONDURASANUS, new species.

Plate 2, figs. 3 and 4.

The general color in alcohol is ferruginous, but in life may have had the dark-violet pigmentation typical for *Ballophilus*. Head with no frontal suture, longer than wide, widest near middle, the sides and anterior margin convex, the caudal margin truncate. Antennae strongly clavate, distally flattened, conspicuously geniculate (fig. 3). Basal plate narrowed caudad, two and a half times wider than long. Prosternum with chitinous lines distinct and complete; anterior margin angularly excised. Prehensors small, not attaining the front margin of the head. Dorsal plates strongly bisulcate, laterally somewhat roughened. Ventral pores beginning on first sternite. Last ventral plate strongly narrowed caudad, the sides

straight or nearly so, partly overlapping the large coxal pit on each side. Anal legs strongly thickened proximally and conically narrowing distad, the last joint pointed and clawless (fig. 4). Pairs of legs, 79.

Length, 31 mm.

Locality.—Honduras: Cecilia, one specimen (W. M. Mann).

Type.—Cat. No. 24127, U.S.N.M.

Family ORYIDAE.

Genus ORPHNAEUS Meinert.

39. ORPHNAEUS BREVILABIATUS (Newport).

Geophilus brevilabiatus NEWPORT, Trans. Linn. Soc. London, 1845, vol. 19, p. 436.

Orphnaeus brasiliensis MEINERT, Naturh. Tidsskr., 1870-71, ser. 3, vol. 7, p. 20.

Orphnaeus lividus MEINERT, Naturh. Tidsskr., 1870-71, ser. 3, vol. 7, p. 19.

Orphnaeus brevilabiatus POCOCK, Biol. Centr. Amer., Chilopoda, 1896, p. 40.

Localities.—Panama; Nicaragua: Polvon, Occidental Department (McNeil); Honduras: La Ceiba, one specimen; Choloma, two specimens; San Pedro, Sula, one specimen (W. M. Mann); Guatemala: Cacao, Trece Aguas (G. P. Goll), Patulul (W. M. Wheeler).

Genus NOTIPHILIDES Latzel.

40. NOTIPHILIDES MAXIMILIANI (Humbert and Saussure).

Notiphilus maximiliani HUMBERT and SAUSSURE, Rev. et Mag. Zool., 1870, ser. 2, vol. 22, p. 205.

Notiphilides maximiliani LATZEL, Die Myriop. Osterr.—Ungar. Monarch., 1880, vol. 1, p. 20.

Localities.—Costa Rica: San Mateo; Guatemala.

Family CHILENOPHILIDAE.

This group is used to include all genera formerly embraced in the Geophilidae which have a coxopleural suture present and conspicuously chitinized in the second maxillae. While in some genera of the group the coxae of the second maxillae are but weakly united with each other, this character shows considerable variation and does not hold for most of the West Indian and Central American forms placed here by the author. Because of indications of transition the group may ultimately prove untenable; but pending further extension of our knowledge it is retained for its obvious convenience.

SUTURODES, new genus.

Head without frontal suture or this but vaguely indicated. Antennae short, filiform. Basal plate wide, trapeziform, overlapped by

the cephalic plate. Labrum free, tripartite. Median piece large, protruding caudad, and armed with a series of long teeth. Lateral pieces fringed with pale spinescent processes. First maxillae with inner and outer branches distinctly set off from coxal plate. Outer branch biarticulate, with two long membranous lappets. Second maxillae with coxae completely and broadly united at middle, as in *Nesidiphilus*, though the median part is commonly more membranous. Coxopleural suture strongly chitinized, anteriorly curving about ectal edge of pore, where it may be only weakly indicated. Ventral sclerites strongly developed, extending far forward and united at anterior end by a small median piece. Palpus triarticulate, terminating in a simple smooth claw; none of joints with a process. Prehensors large, exposed from above and extending beyond front margin of head. Claw and femuroid armed within and prosternum armed anteriorly. Prosternum without chitinous lines. Ventral pores normally in four areas, one on each quarter of plate, as in *Nesidiphilus*, etc. Last ventral plate narrow. Coxopleurae of last legs elongate, usually considerably exposed from above, and bearing very numerous small pores. Anal legs with six joints beyond coxae, clawless.

Genotype.—*Suturodes tardus*, new species.

This genus differs from the West Indian genus *Nesidiphilus* in the position of the coxopleural suture, this in the latter genus always ending at the margin mesad of or caudomesad of the pore, as also it does in the closely related *Telocricus* (pl. 4, fig. 5), whereas in the present group this suture curves about the ectal edge of the pore in the more usual manner (pl. 3, fig. 4).

41. SUTURODES TARDUS, new species.

Plate 2, fig. 5; plate 3, figs. 2, 3, and 4; plate 4, figs. 3 and 4.

Flavous, the head and prehensors and a few anterior tergites typically of a dilute chestnut tinge. Head about 1.68 times longer than wide; widest at caudal end of frontal region, from where the sides are parallel or converge but slightly caudad to the oblique caudal corners and more strongly forward. Anterior margin a little convex at middle. Caudal margin straight (pl. 4, fig. 3). Articles of antennae moderately long, the ultimate clearly shorter than the two preceding taken together. No distinct clypeal areas excepting the small, pale spots from which the principal, more median setae arise. Ectad of each of these setae of the median pair a series of three or four setae and in front of them and between the antennae a second pair. Caudad of the main transverse series of setae a second series of smaller setae, these 3+3 or 3+4. Caudad of this second series two setae on the median line, one behind the other, with sometimes

a much reduced setae each side of the first of these. Median piece of labrum projecting well caudad of the lateral pieces; bearing typically six long teeth (pl. 4, fig. 4). Coxal plate of first maxillae with a pair of long setae at anterior border, and three or four lesser setae. Setae of coxae of second maxillae few, consisting typically of a submarginal series of four on each side and a group of four at middle. For other features see plate 3, figure 4. Exposed part of basal plate about four times as broad as long. (In the holotype the cephalic plate has been shifted abnormally forward.) Claws of prehensors when closed extending beyond distal end of first antennal article, but not attaining the distal end of the second. Tooth at base of claw black, conical, that of the femuroid similar but larger. Teeth of prosternum short, blunt. See further plate 3, figure 2. Dorsal plates distinctly bisulcate, the paired sulci also traversing the basal plate. Anterior ventral plates with a deep, median longitudinal sulcus. First spiracle large, vertically oval, the second of similar shape and but little smaller. The third more abruptly reduced, the succeeding ones soon becoming circular and small. Last dorsal plate narrow and long, its sides nearly parallel (pl. 2, fig. 5). Last ventral plate very narrow, its sides a little converging caudad, toward caudal end rounding in to caudal margin. Coxopleural pores small and very numerous ventrally, laterally, and dorsally (pl. 3, fig. 3). Pairs of legs, 69 to 71.

Length, 42 mm.

Locality.—Honduras: San Juan Pueblo, two specimens (W. M. Mann).

Type.—Cat. No. 24128, U.S.N.M.

42. SUTURODES GUATEMALAE, new species.

Plate 3, fig. 5; plate 4, figs. 1 and 2.

Resembling *S. stolli* (Pocock) in general. Frontal plate not discrete, but vaguely indicated in part only as a pale line. Head widest near level of this line, the sides moderately converging caudad instead of being parallel. The anterior corners are not widely rounded, as represented in the figure of *S. stolli*, but are a little obtusely angular, the anterior margin of the head being in the form of a very obtuse angle. The length of the exposed portion of the basal plate is much less than half its anterior width, being overlapped by head and by first tergite; it bears a single transverse series of setae. It differs from *stolli*, according to notes on the latter given by Attems,¹ in having two small clypeal areas, each bearing a seta instead of a single nonsetigerous area. In front of the two setae of these areas in the present species is a second pair

¹ Schulze, *Forschungs-r. in West. u. Zentr. Südafrika*, vol. 2, Abt. 1, p. 35.

of setae, and caudad and laterad of them are four or five setae on each side in two series, the total number of setae being thus 12 or 13; all are very short (pl. 4, fig. 1). Median piece of labrum large, bearing six teeth. Coxae of second maxillae broadly united, pores opening through mesal edge. The chitinous coxopleural suture is strongly marked in its caudal half, becoming weaker anteriorly where it curves around the ectal side of the pore. The lappets of the first maxillae are long and conspicuous, but that of the second joint is smaller proportionately to that of the first than in *tardus*. Anterior margin of prosternum with two reduced, almost obsolete teeth. Femuroid of prehensors armed within at distal end with a rounded tooth, claw at base with a dark, conical tooth. Other joints unarmed (pl. 4, fig. 2). First spiracle vertically elliptic, much larger than the second. The second and following spiracles circular. Last ventral plate narrow; sides converge caudad, more strongly so toward caudal ends; caudal margin straight. Coxopleural pores numerous, but fewer above than in *tardus*. Last dorsal plate broader than in the latter species (pl. 3, fig. 5). Anal legs in male but little thickened; with numerous very short hairs on ventral surface of proximal joints. Pairs of legs (male), 59.

Length, about 21 mm.

Locality—Guatemala: San Rafael, June 4, 1914. (O. F. Cook).

Type—No. 24129, U.S.N.M.

43. *SUTURODES STOLLI* (Pocock).

Geophilus stolli Pocock, Biol. Centr. Amer. Chilopoda, 1896, p. 38, pl. 3, figs. 9-9c.

Pachymerium stolli ATTEMS, Schulze Forschungsr. im West. u. Zentr. Südafrika, 1909, vol. 2, Abt. 1, p. 35, fig. 5.

This species is listed under *Suturodes* with but little doubt, although I have not seen specimens of the form. Attems places the species in *Pachymerium*, of the Geophilidae proper; but his figure shows a coxopleural suture as developed posteriorly. This suggests the condition in the preceding species, in which the posterior part of the suture is strongly chitinous and conspicuous, while the anterior part is weaker and quite likely to be overlooked in the unmounted maxillae.

EXPLANATION OF PLATES.

The plates were drawn by the author.

PLATE 1.

Newportia divergens.

FIG. 1. Head and first segments, dorsal view×17.

Cryptops micrus.

2. Last leg, mesal view×65.

Newportia sulana.

3. Distal end of tarsus of last leg $\times 65$.

Scutigera nubila.

4. Caudal portion of fifth tergite $\times 45$.
5. Last tergite and caudal border of preceding one, in outline $\times 45$.

Labrobius cobulcanus.

6. Anterior portion of prosternum $\times 65$.
7. Basal joint and spines of left genital forceps of female, ventral view $\times 65$.

PLATE 2.

Sogodes difficilis.

- FIG. 1. Head, dorsal view $\times 48$.
2. Glands of left coxopleura of anal legs, in outline $\times 220$.

Tanophilus hondurasanus.

3. Head and first tergite, dorsal view $\times 54$.
4. Caudal end of body, ventral view $\times 56$.

Suturodes tardus.

5. Caudal end, dorsal view $\times 33$.

PLATE 3.

Ityphilus ceibanus.

- FIG. 1. Head and first plate $\times 76$.

Suturodes tardus.

2. Prosternum and prehensors $\times 15$.
3. Caudal end, ventral view $\times 33$.
4. Maxillae, the right palpus of second pair omitted $\times 63$.

Suturodes guatemalae.

5. Caudal end, dorsal view.

PLATE 4.

Suturodes guatemalae.

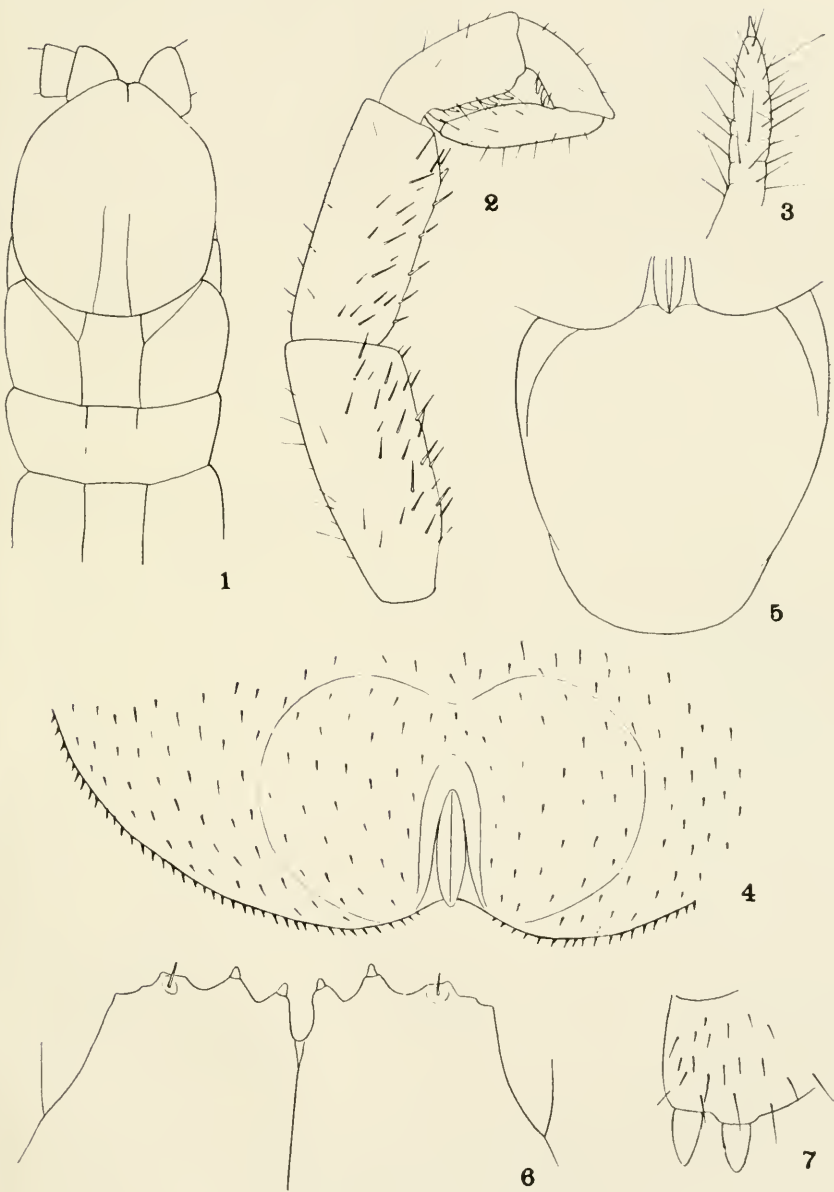
- FIG. 1. Anterior portion of head, with maxillae removed, ventral view $\times 49$.
2. Prosternum and prehensors $\times 22$.

Suturodes tardus.

3. Head and adjacent tergites, dorsal view $\times 15$.
4. Labrum $\times 220$.

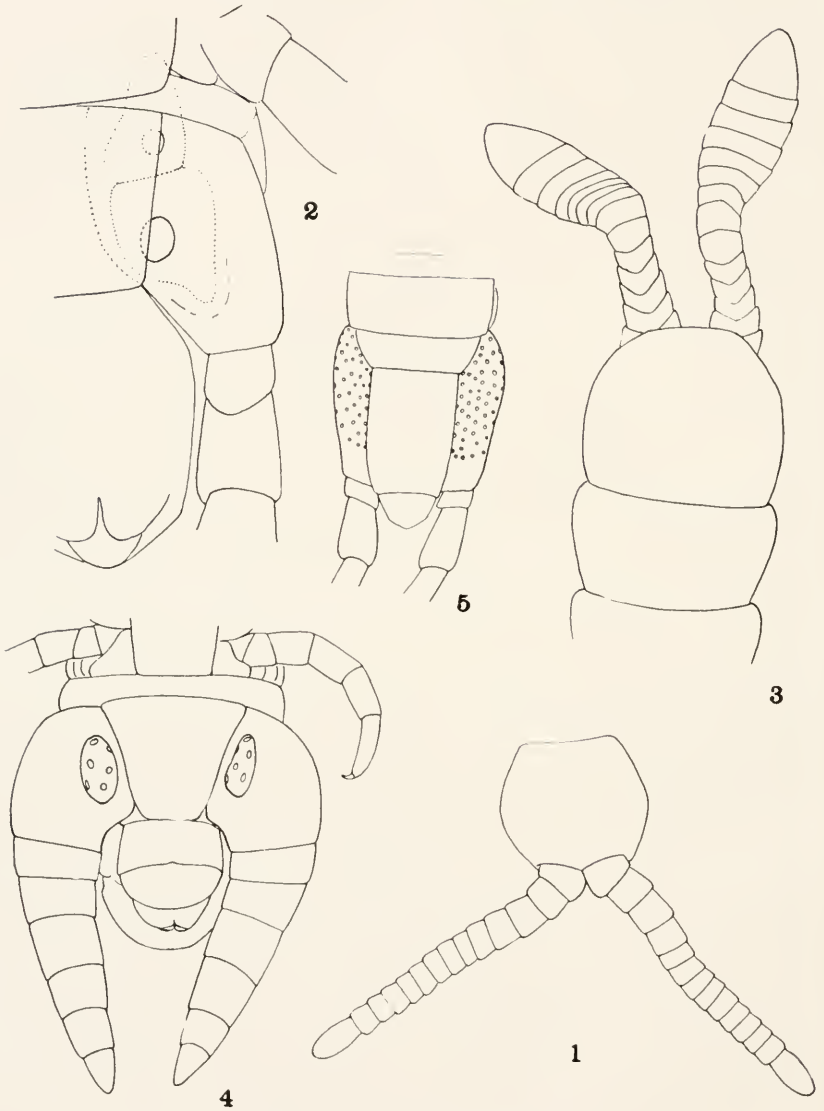
Tcloericus marginalis.

5. Coxosternum of second maxillae, showing coxopleural line, etc. $\times 63$.



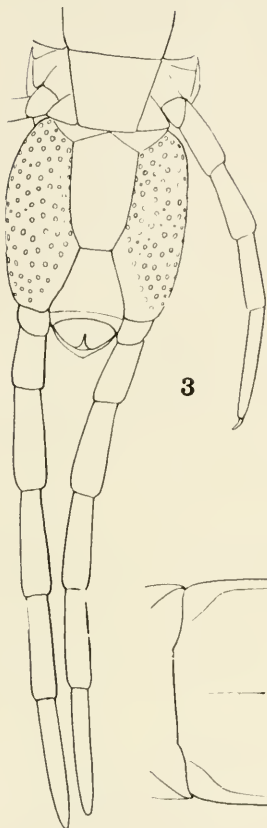
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FOR EXPLANATION OF PLATE SEE PAGES 16 AND 17.

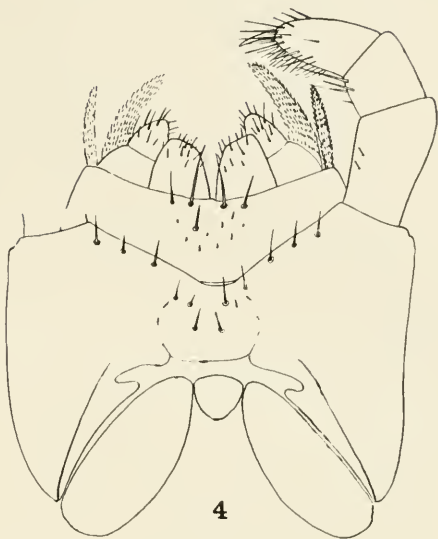


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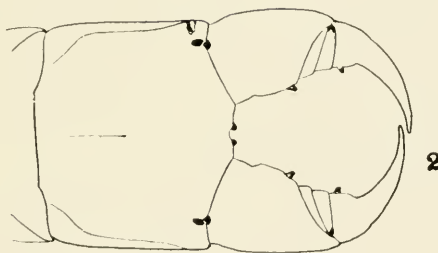
FOR EXPLANATION OF PLATE SEE PAGE 17.



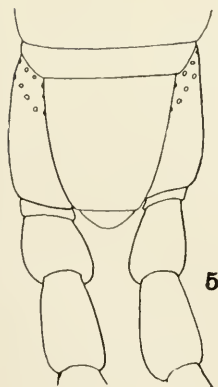
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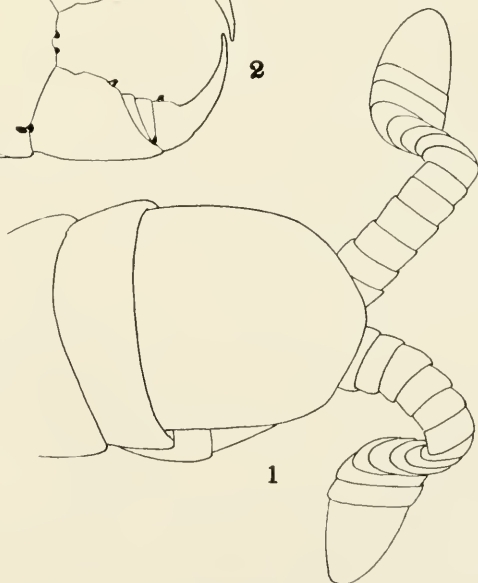
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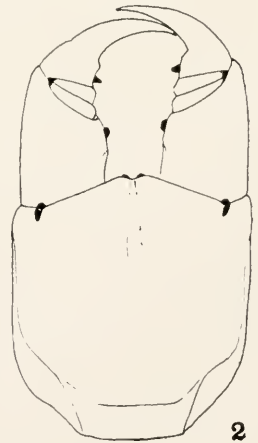
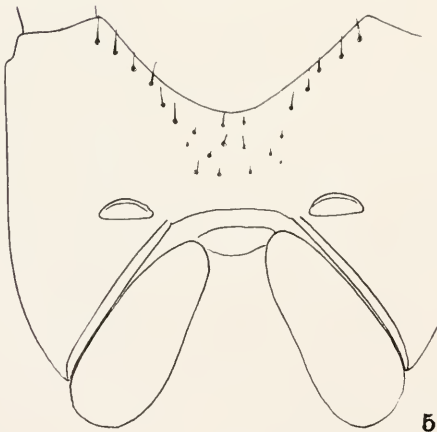
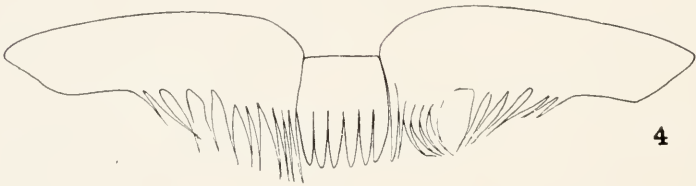
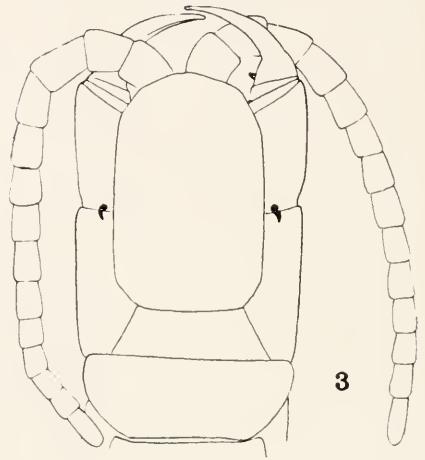
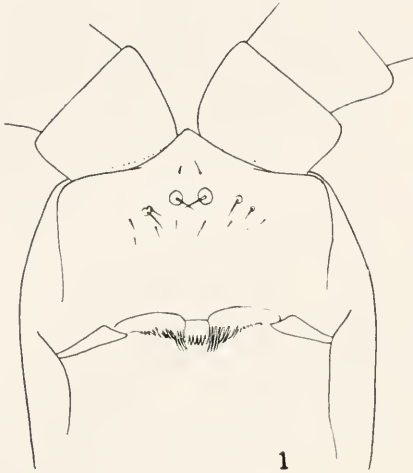
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FOR EXPLANATION OF PLATE SEE PAGE 17.



CENTIPEDS OF CENTRAL AMERICA

FOR EXPLANATION OF PLATE SEE PAGE 17