

The Onychophora of Jamaica

ROSS H. ARNETT, JR., Department of Biology, The Catholic University of America, Washington, D. C.

The author has been privileged to study a fine lot of Onychophora from the island of Jamaica, representing several years of concentrated collecting by biologists associated with the Institute of Jamaica in Kingston. The results of this study are incorporated below. I wish to express my sincere appreciation to C. Bernard Lewis, Director of the Institute of Jamaica and Curator of the Science Museum, for giving me the opportunity to study this material. Mr. Lewis has collected much of this material himself, including the first specimens of the new species described below and which is dedicated to him. Grateful acknowledgment is also made of the notes and specimens furnished by Mr. R. P. Bengry, Assistant Curator at the Science Museum, and for his kind assistance in checking the manuscript and other details.

This group of animals, variously designated as a class of arthropods or lately, by an increasing number of zoologists, as a separate phylum, is of particular interest because of the zoogeographical implications it presents. The island of Jamaica now has four representatives, three species and one subspecies, as described below. Interestingly enough, each of these forms represents a different genus, of which one, *Plicatoperipatus*, is unique to the island. The other three genera are widely distributed throughout the West Indies, Central America, and northern South America. However, all of the forms herein reported are known only from Jamaica. The zoogeography of Onychophora has been discussed in numerous papers. These notes serve only as a supplement to those studies.

The colour of alcoholic specimens usually is destroyed or changed in such a way that it is difficult to use colour for identification. From notes furnished by Mr. Lewis and Mr. R. P. Bengry, it appears that in life the colour is relatively constant and is a help in recognizing species. These notes have been appended to the species descriptions that follow.

The key, illustrations, and descriptions will serve to identify the species known from Jamaica. The work of Bouvier (1905-7) and of Clark (1913) should be consulted for the definition of genera.

Key to the Genera and Species of Onychophora of Jamaica

1. 24 transverse dorsal folds to each segment, somewhat indistinct because of numerous anastomosing and irregularities in the grooves which separate them; 37-41 pairs of legs; papillae with acute apices and sub-apices, appearing serrate (Fig. 1); adults 40-55 mm long.....
.....*Plicatoperipatus jamaicensis* Grabh. & Ckll.
- 12 transverse dorsal folds to each segment, usually distinct; papillae various, but without the serrate appearance.....2
2. Primary papillae on the dorsal surface of the body each with a quadrangular base separated by straight grooves parallel with the axis of the body; accessory papillae ordinarily small and few in number; apices of primary papillae surmounted by a high and prominent truncated cone or slightly tapering cylinder (Fig. 2); 34-36 pairs of legs; adults 63-66 mm long.....
.....*Macroperipatus insularis clarki* subsp. nov.
- Primary papillae of dorsal surface each with a more or less rounded base; accessory papillae exhibiting diverse stages of development.....3
3. Primary papillae of dorsal surface exhibiting great difference of size at all ages, generally arranged with three accessory papillae between two primary papillae; 29-33 pairs of legs; adults $43 \pm$ mm long.....*Peripatus swainsonae* Ckll.
- Primary papillae of dorsal surface all of one type but of various sizes, with rounded or oval bases; primary papillae tall, with long, narrow, slightly tapering, cylindrical cones (Fig. 5); 34-36 pairs of legs; adults 71-79 mm (rarely 127 mm) long.....*Epiperipatus lewisi* sp. nov.

Genus **PLICATOPERIPATUS** Clark, 1913

Plicatoperipatus jamaicensis (Grabham and Cockerell, 1892).
Peripatus jamaicensis Grabham and Cockerell, 1892, Nature 46: 514.

Type locality.—Jamaica, Beacon Hill, near Bath, 3 specimens.

This well-known species can be readily separated from all others by the unique arrangement of the dorsal folds of each

segment, there being 24 per segment instead of the usual 12. The papillae in lateral view are much more serrate than in other species and the apex lacks a noticeable cone (Fig. 1). This species is reported to be reddish brown in life, varying from maroon to vinous red. Most specimens have white-tipped antennae, but some are reported to be without this marking.

Material studied.—Portland, 5 miles southwest of Priestman's River (ca. 1,500 ft), Feb. 6, 1953, W. G. Lynn, collector, 3 specimens as follows: 37 pairs of legs, 55 mm long, 3 mm wide, 2.5 mm high; 38 pairs of legs, 18 mm long (young); 39 pairs of legs, 37 mm long, 4 mm wide, 2.5 mm high. About 1 mile W.S.W. of Ecclesdown (ca. 1,200 ft), March 30, 1958, R. P. Bengry, collector; 31 pairs of legs, 25 mm long, 3 mm wide, 2 mm high. Manchester. Summit of Heron's Hill (3,100 ft), March 3–8, 1952, from rotten log, G. R. Proctor, collector; 40 pairs of legs, 42 mm long. St. Thomas, 20 yards north of 6th milepost between Barrett's Gap and Corn Puss Gap (ca. 800 ft), July 25, 1952, under completely decayed tree-fern trunk, R. P. Bengry, collector; 40 pairs of legs, 40 mm long, 5 mm wide, 4 mm high. Morce's Gap (5,000 ft), July 21, 1936, W. G. Lynn, collector; 38 pairs of legs, 46 mm long, 2.5 mm wide, 2 mm high (deposited in the United States National Museum collection by the collector). Trelawny. Windsor (400 ft), Aug. 20, 1956, under stone, R. P. Bengry, collector; 38 pairs of legs, 60 mm long, 6 mm wide, 4 mm high. St. Ann. 2½ miles northwest of Hollymount (2,200 ft), May 24, 1957, under stone, R. P. Bengry, collector; 40 pairs of legs, 50 mm long, 5 mm wide, 4 mm high: 4.8 miles south of Moneague (2,750 ft), July 5, 1957, P. Drummond, collector; 36 pairs of legs, 35 mm long, 4 mm wide, 3 mm high. Mosely Hall Cave, near Blackstonedgedge (ca. 2,000 ft), Dec. 14, 1952, J. M. Valentine, collector; 37 pairs of legs, 28 mm long.

Genus **MACROPERIPATUS** Clark, 1913

Macroperipatus insularis clarki, subsp. nov.

Type locality.—Jamaica, Portland, 5 miles southwest of Priestman's River (ca. 1,500 ft).

The characteristics of *M. i. clarki* agree with Clark's description of the genus and of the typical *insularis* except that the cone of the primary papillae is narrower and more nearly cylindrical (Figs. 2 & 3) than in the type of the species (Fig. 3). In addition, *M. i. clarki* is larger (63–66 mm) and has more pairs of legs (34–36). *M. i. insularis* Clark is approximately 55 mm long with 30 pairs of legs. The colour of *M. i. clarki* is grey in life.

Four specimens are known, all from the same locality in Portland, 5 miles southwest of Priestman's River, ca, 1,500 ft. *Holotype*: Feb. 6, 1953, C. B. Lewis, collector; 36 pairs of legs, 65 mm long, 4.5 mm wide, 3 mm high. *Paratype*: Feb. 6, 1953, C. B. Lewis, collector; 34 pairs of legs, 63 mm long, 5 mm wide, 3.5 mm high. *Paratype*: March 11, 1953, W. G. Lynn, collector; 35 pairs of legs, 66 mm long, 4 mm wide, 3 mm high. *Paratype*: March 11, 1953, W. G. Lynn, collector; 36 pairs of legs, 63 mm long, 4 mm wide, 2.5 mm high.

It is interesting to note that the nearest relative of this species is from Veracruz, Mexico (*Macroperipatus parrieri* Bouvier); no Onychophora are yet known from Cuba. *M. i. insularis* Clark, the type of the species, was collected between Jacmel and Tronim, Haiti.

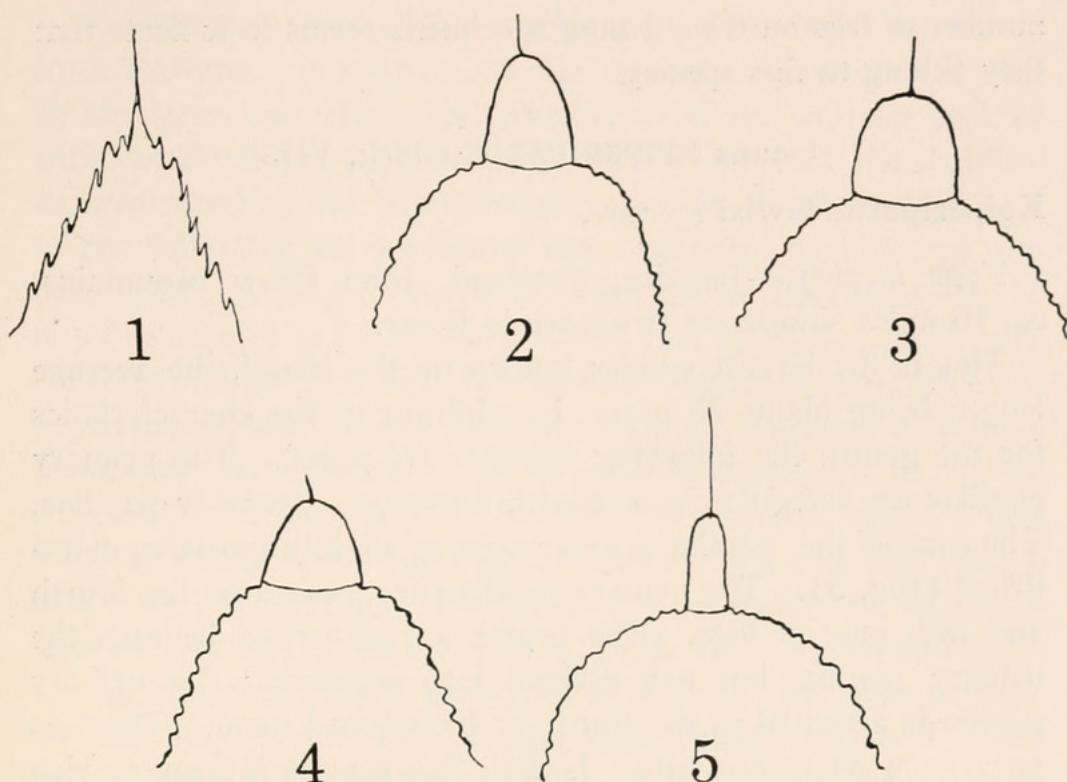
Genus PERIPATUS Guilding, 1826

Peripatus swainsonae Cockerell, 1893.

Peripatus juliformis var. *swainsonae* Cockerell, 1893, Zoologische Anzeiger, 16: 341.

Type locality.—"Jamaica."

This species may be recognized on the basis of its generic characteristics alone, principally by the arrangement of the primary and accessory papillae as given in the key. It is the smallest of the four species and has the least number of legs. The shape of the papillae distinguishes it from all other species on the island: It has a broad base which tapers gradually to a broad summit; the cone is short and broad (Fig. 4). This species is reported to be olive-green in life.



Lateral view of the primary papillae of adults.

- FIG. 1. *Plicatoperipatus jamaicensis* Grabham and Cockerell.
 FIG. 2. *Macroperipatus insularis* subspecies *clarki*, new subsp.
 FIG. 3. *Macroperipatus insularis* subspecies *insularis* Clark.
 FIG. 4. *Peripatus swainsoni* Cockerell.
 FIG. 5. *Epiperipatus lewisi*, new species.

Material studied.—Hanover. Lances Bay, September 13, 1952, collected under stone, on limestone, 2½ inches of rain on previous day, W. G. Lynn, collector; 30 pairs of legs, 43 mm long, 4 mm wide, 3 mm high. Portland. 5 miles southwest of Priestman's River, ca. 1,500 ft, March 11, 1953, W. G. Lynn, collector; 31 pairs of legs, 22 mm long. Trelawny. Windsor (400 ft), Aug. 20, 1956, under stone, R. P. Bengry, collector; 28 pairs of legs, 22 mm long, 4 mm wide, 3 mm high.

There are also five young specimens, born in the laboratory, which appear to belong to this species. However, it is not apparent to the author which specimens were the parents of these immatures. The plication and papillae are not sufficiently developed at birth to make certain of the identification. The

number of legs on these young specimens seems to indicate that they belong to this species.

Genus **EPIPERIPATUS** Clark, 1913

Epiperipatus lewisi sp. nov.

Type locality.—Jamaica, Portland, John Crow Mountains, ca. 10 miles southwest Priestman's River.

This is the largest species known on the island, the average length being about 75 mm. In addition to the characteristics for the genus, the following features are noted. The primary papillae are irregular in size with numerous accessory papillae. The cone of the papilla is long, narrow, slightly tapering, cylindrical (Fig. 5). The urinary papillae are located on the fourth and fifth pair of legs. The fourth arc is arched beneath the urinary papilla, but not divided into segments; the urinary papilla is attached to the third arc by a broad band. The legs vary from 34 to 36 pairs. In life, this species is grey to rich dark reddish-brown.

Three specimens of this new species were recently collected by Mr. R. P. Bengry, who supplies the following interesting notes: The specimens were collected in a rotten log on a rocky slope. The largest specimen (which is probably the largest *Peripatus* known, measuring 127 mm in life) was collected first. "Careful examination of the well-decayed log debris, torn apart largely by hand, revealed another two of the same kind (*E. lewisi*) and a small different one, (*P. jamaicensis*). I am of the distinct opinion that the first found specimen was very light reddish (almost pink flesh coloured) but I did not see it change colour (if it did) and the other two were not *so* light coloured when found. . . . The colour as we observed them is in our opinion: rich, dark reddish-brown with a soft (not shiny) velvety appearance. We noted that they walk in reverse with just as much ease as forwards and also that when poked with a finger wriggle 3 or 4 times in the manner of an earthworm. We searched in logs, under stones and leaf mould for more but found none. It is interesting to note that there were few, if any, tree-ferns where we were working."

The closest relative of this species is *E. edwardsii* (Blanchard) from Panama. It may be readily separated from that species by the large size, the broad connection of the urinary papillae with the third arc, and the long, narrow cones of the papillae, as contrasted to the short, broad cones of *E. edwardsii*.

The following six specimens are designated as holotype and paratypes. *Holotype*: Portland, John Crow Mountains, ca. 10 miles southwest of Priestman's River, Jan. 9, 1951, C. B. Lewis, collector; 35 pairs of legs, 75 mm long, 6 mm wide, 4 mm high, deposited in the United States National Museum collection. *Paratypes*: same locality and date as holotype, C. B. Lewis, collector; two paratypes as follows: 34 pairs of legs, 75 mm long, 6 mm wide, 3.5 mm high; 36 pairs of legs, 71 mm long, 6 mm wide, 3.5 mm high. Portland. 5 miles southwest of Priestman's River (ca. 1,500 ft), Feb. 6, 1953, W. G. Lynn and C. B. Lewis, collectors, three paratypes as follows: 35 pairs of legs, 55 mm long, 5 mm wide, 3 mm high (killed March 4, 1953, and oviducts removed for sectioning); 35 pairs of legs, 72 mm long, 6 mm wide, 5 mm high; 35 pairs of legs, 79 mm long, 6 mm wide, 5 mm high.

Additional material examined. Portland. ca. 1 mile W.S.W. of Ecclesdown, March 30, 1958, R. P. Bengry, collector, three specimens as follows: 36 pairs of legs, 127 (living specimens), 112 (preserved specimens) mm long, 10 mm wide, 7 mm high; 35 pairs of legs, 78 mm long, 7 mm wide, 5 mm high; 36 pairs of legs, 76 mm long, 7 mm wide, 5 mm high.

No other species of *Epiperipatus* is known from the West Indies proper, except for *E. barboursi* Brues from Grenada. *E. trinidadensis* (Stuhlmann) is known from Trinidad and *E. t.* var. *broadwayi* Clark is described from Tobago. I have recently identified *E. edwardsii* from Trinidad.

BIBLIOGRAPHY

- ANDREWS, E. A. 1911. Johns Hopkins Univ. Circ., Feb. 1911, pp. 1-4.
———. 1933. Quart. Rev. Biol. 8: 155-163.
BARBOUR, T. 1910. Bull. Mus. Comp. Zool. 52: 271-301.
BENGRY, R. P. 1953. Nat. Hist. Notes, Nat. Hist. Soc. Jamaica 5(58): 167.

- BOUVIER, M. E. L. 1905. *Ann. Sci. Nat. Zool.* ser. 9, 2: 1-383.
— 1907. *Loc. cit.* 5: 61-318.
BRUES, C. T. 1911. *Bull. Mus. Comp. Zool.* 54(8): 305-318.
CLARK, A. H. 1913. *Proc. Biol. Soc. Washington* 26: 15-20.
COCKERELL, T. D. A. 1893. *Zool. Anz.* 16: 341-343.
— 1901. *Nature* 63: 325-326.
DUERDEN, J. E. 1901. *Nature* 63: 440-441.
GOSSE, P. H. 1851. *A Naturalist's Sojourn in Jamaica.* London.
GRABHAM, M. and T. D. A. COCKERELL. 1892. *Nature* 46: 514.
GRABHAM, M. 1893. *Journ. Inst. Jamaica* 1: 217-220.
GUILDING, L. 1826. *Zoological Journal* 2: 443.
LYNN, W. G. 1944. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica* 2(19): 113-114.
— 1946. *Glimpses of Jamaican Natural History* 2: 21-23.
SEDWICK, A. 1888. *Quart. Journ. Micro. Soc.* 28: 431-493.
WALTER, M. 1943. *Nat. Hist. Notes, Nat. Hist. Soc. Jamaica* 1(9): 10-11.
-

Nomenclature Notice

All comments relating to the following should be marked with the Commission's File Number and sent in duplicate, before December 16th, to the Secretary, International Commission on Zoological Nomenclature, c/o British Museum (Natural History), Cromwell Road, London, S.W. 7, England.

- Validation of the generic name **Cicadella** Latreille, 1817 (Order Hemiptera). Z.N. (S.) 457.
Designation of a type-species for **Conomelus** Fieber, 1866 (Order Hemiptera). Z.N. (S.) 468.
Designation of a type-species for **Aphis** Linnaeus, 1758 (Order Hemiptera). Z.N. (S.) 881.
Designation of a type-species for **Dasiops** Rodani, 1856 (Order Diptera). Z.N. (S.) 1240.
Designation of a type-species for **Harrisoniella** Bedford, 1928 (Order Mallophaga). Z.N. (S.) 1282.
Designation of a type-species for **Lestis** Lepeletier & Serville, 1828 (Order Hymenoptera). Z.N. (S.) 1383.

For details see *Bull. Zool. Nomencl.* Vol. 18, Part 3.



Arnett, Ross H. 1961. "The Onychophora of Jamaica." *Entomological news* 72, 213–220.

View This Item Online: <https://www.biodiversitylibrary.org/item/20570>

Permalink: <https://www.biodiversitylibrary.org/partpdf/32150>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: American Entomological Society

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.