

T. J. SPILMAN

*Bredin-Archbold-
Smithsonian Biological
Survey of Dominica:
Bostrichidae, Inopeplidae,
Lagriidae, Lyctidae,
Lymexylonidae, Melandryidae,
Monommidae, Rhipiceridae, and
Rhipiphoridae (Coleoptera)*

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ABSTRACT

Spilman, T. J. Bredin-Archbold-Smithsonian-Biological Survey of Dominica: Bostrichidae, Inopeplidae, Lagriidae, Lyctidae, Lymexylonidae, Melandryidae, Monommidae, Rhipiceridae, and Rhipiphoridae (Coleoptera). *Smithsonian Contributions to Zoology*, 70:1-10, 1971.—The known fauna of Dominica for each family is given. The Bostrichidae are represented by five species in five genera; all other families have one species each on the island. Of the thirteen species, nine are reported from Dominica for the first time. The larva of *Callirhipis lherminieri*, the rhipicerid, is described and illustrated, and the larva and adult of *Inopeplus praeustus*, the inopeplid, are illustrated.

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This report is the first of the series on beetles or Coleoptera in the Bredin-Archbold-Smithsonian Biological Survey of Dominica. A modern survey of the beetles is most certainly needed, for past reports of the fauna of Dominica have only hinted at the true picture. Only 57 species of beetles were recorded in 1914 and 1917 (Leng and Mutchler, 1914, 1917); the number was increased to 123 in 1944-1957 (Blackwelder). The increase is a significant gain in exploration and subsequent research. Compare, however, those 123 species on Dominica (305 square miles) with 705 species recorded on the neighboring northern island of Guadeloupe (583 square miles) in 1914 and 1917. The great difference in species numbers is probably not a result of island size or numbers of ecological niches but is undoubtedly an artifact of collecting and reporting. The beetles of Guadeloupe were so thoroughly studied in 1890 (Fleutiaux and Sallé, 1890) that even today they are the best known in all the Antilles. On the other hand, Dominican

beetles are probably the least known because collecting has been neglected. Surely Dominica, a lush and relatively undisturbed island, has more than one-fifth the number of beetles on Guadeloupe. Thus, the Survey, with its intensive collecting and subsequent reporting, should help give a truer picture of the complete beetle fauna of Dominica.

The report is quite straightforward. It includes for each species the correct scientific name, all synonyms in their original combination of generic and specific names; new information on life history and references to previous data; and references to previous illustrations or descriptions. Also, for each family I have compared the number of species on Dominica with the number on Guadeloupe. All specimens mentioned under "Dominican distribution" are in the National Museum of Natural History. All included Dominican species and their distributions on other West Indian islands and mainland areas are listed in Table 1. Two bits of information might be of interest to the general coleopterist: The larva and pupa of *Callirhipis lherminieri* are described and illustrated for the first time, and illustrations of the larva of *Inopeplus praeustus* are presented to help place this controversial genus in classifications.

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TABLE 1.—*Distribution of species discussed in this report*

Species	United States	Mexico	Central America	Bahama Islands	Cuba	Hispaniola	Jamaica	Puerto Rico	Virgin Islands	Anguilla	St. Martin	St. Barthelemy	Saba	St. Eustatius	St. Kitts	Nevis	Barbuda	Antigua	Montserrat	Guadeloupe	Dominica	Martinique	St. Lucia	St. Vincent	Barbados	Grenadines	Grenada	South America, Trinidad	Eastern Hemisphere
Bostrichidae																													
<i>Melalgus probably gonager</i>					x	x	x	x	x		x									x	x			x					
<i>Dinoderus minutus</i>	x	x	x		x	x		x												x	x			x			x	x	x
<i>Tetrapriocera longicornis</i>	x	x	x		x	x		x	x											x	x						x	x	
<i>Xylopsocus capucinus</i>																					x							x	x
<i>Xylomeira torquata</i>	x	x		x	x	x	x	x	x									x	x	x	x	x	x				x		
Inopeplidae																													
<i>Inopelplus praeustus</i>																				x	x	x		x					
Lagriidae																													
<i>Statira fulva</i>																				x	x								
Lyctidae																													
<i>Lyctus caribaenus</i>		x	x			x		x												x	x								
Lymexylonidae																													
<i>Atractocerus brasiliensis</i>		x	x		x		x	x												x	x			x	x		x	x	
Melandryidae																													
<i>Phloeotrya mexicana</i>		x	x																		x							x	
Monommidae																													
<i>Hyporhagus marginatus fabricii</i>						x														x	x							x	
Rhipiceridae																													
<i>Callirhipis lherminieri</i>																				x	x			x					
Rhipiphoridae																													
<i>Macrosaigon octomaculatum</i>	x		x																	x	x			x				x	

I thank the sponsors of the Survey for inviting me to collect and study on Dominica during July, August, and September of 1964, and I thank the United States Department of Agriculture for cooperating in my participation. I also thank Arthur D. Cushman of the Department of Agriculture for the fine illustrations accompanying this text.

Family BOSTRICHIDAE

Twenty species of this family have been reported from the West Indies, and three other species have been reported as doubtfully occurring there. Five species occur on Dominica; heretofore only one species has been recorded. By contrast, ten species have been reported from the neighboring island of Guadeloupe.

Key to the Adults of Species on Dominica

- Head visible from above, not deeply inserted into prothorax.
 - Melalgus probably gonager* (F.)
- Head not visible from above, deeply inserted into prothorax.....2
2. Metatarsus shorter than metatibia.....*Dinoderus minutus* (F.)
- Metatarsus longer than metatibia.....3
3. Antennal club composed of 4 segments.....*Tetrapriocera longicornis* (Olivier)
- Antennal club composed of 3 segments.....4
4. Elytra with posterior declivity bordered completely with sharp carina.
 - Xylopsocus capucinus* (F.)
 - Elytra with posterior declivity having 6 tubercles on dorsal border, not having carina.
 - Xylomeira torquata* (F.)

Melalgus probably gonager* (Fabricius)Apate gonagra* Fabricius, 1798

PREVIOUSLY RECORDED DISTRIBUTION.—Cuba; Jamaica; Hispaniola; Mona; Puerto Rico; St. Thomas; St. Barthelemy; Guadeloupe; Dominica; St. Vincent (Blackwelder, 1945, p. 398).

DOMINICAN DISTRIBUTION.—No further locality, 1913, A. H. Verrill; Antrim, 1,000 feet, 12 March 1956, J. F. G. Clarke.

BIOLOGY.—Nothing is known of the habits of this species; other members of the genus bore in the wood of hardwood trees. The immature stages of this species have not been described.

NOTES.—The two specimens on which the Dominican distribution is based are females, and I am unable to determine them to species. Lesne (1906, p. 395) presented a good key to the males of four West Indian species, but he could not separate the females. I have tentatively assigned these females to *gonager* because of a previous report of this species on Dominica by Leng and Mutchler (1917, p. 207). That report was based on the U. S. National Museum collection. I assume the 1913 specimen mentioned above was the basis or at least part of the basis of the report. Confirmation of the species will have to await the discovery of males on the island. The adult of *gonager* was illustrated by Lepsme (1947, fig. 241). This species, like others now in *Melalgus*, was transferred from the genus *Hetararthron* by Fisher (1950, p. 5).

Dinoderus minutus* (Fabricius)Apate minutus* Fabricius, 1775.*Bostrichus vertens* Walker, 1859.*Rhizopertha sicula* Baudi, 1873.

PREVIOUSLY RECORDED DISTRIBUTION.—Cuba; Hispaniola; Puerto Rico; Guadeloupe; St. Vincent; Grenada; Old and New World Tropics (Blackwelder, 1945, p. 398; Lepsme, 1947, p. 203; Plank, 1948, p. 2).

DOMINICAN DISTRIBUTION.—Roseau, July 1936, R. E. Blackwelder; several specimens intercepted at Buffalo, New York, in bamboo shipped from Dominica.

BIOLOGY.—Plank (1948, p. 1) and Fisher (1950, p. 31) state that this species prefers the wood of bamboo but never infests growing bamboo. The adults attack

many kinds of timber, plants, and vegetable products, but, according to authentic records, the host plants of the larvae are restricted to bamboo and canes. This species has been known to reduce structures built of bamboo to dust in a few years. The larvae were described and illustrated by Gardner (1933, p. 8) and Anderson (1939, p. 388, figs. 3, 6).

NOTES.—This well-known pest is commonly called the bamboo powder-post beetle. The adult of this species was illustrated by Lesne (1924, fig. 38). This is the first report of the occurrence of this species on Dominica.

Tetrapriocera longicornis* (Olivier)Bostrichus longicornis* Olivier, 1795.*Tetrapriocera schwarzi* Horn, 1878.

PREVIOUSLY RECORDED DISTRIBUTION.—Cuba; Isla de Pinos; Hispaniola; Puerto Rico; St. Thomas; Guadeloupe; Grenada; South America; Central America; Mexico; United States (Blackwelder, 1945, p. 400).

DOMINICAN DISTRIBUTION.—Clarke Hall, 4 July 1964, T. J. Spilman; Clarke Hall, 6-8 October 1964, P. J. Spangler.

BIOLOGY.—Fisher (1950, p. 103) summarized the biology of this species: adults boring into living trunks and branches of *Metopium toxiferum* (L.) Krug and Urban (= *Rhus metopium* L.); larvae and adults in half-burned roots of *Smilax*; adults in pruned and girdled branches of avocado and guayaba; adults in derris roots. Some of the Dominican specimens were captured at light. The immature stages have not been described.

NOTES.—The adult of this species was illustrated by Lepsme (1947, fig. 244). This is the first report of the occurrence of this species on Dominica.

Xylopsocus capucinus* (Fabricius)Apate capucinus* Fabricius, 1781.*Bostrichus eremita* Olivier, 1790.*Enneadesmus nicobaricus* Redtenbacher, 1867.

PREVIOUSLY RECORDED DISTRIBUTION.—Brazil, Venezuela, Surinam, Trinidad; Old World Tropics (Blackwelder, 1945, p. 400; Fisher, 1950, p. 141; Kalshoven, 1963, p. 238).

DOMINICAN DISTRIBUTION.—Clarke Hall, 5 July 1964, 21 August 1964, T. J. Spilman.

BIOLOGY.—I found adults of this species living in old wooden poles that form the structural skeleton of the roof of the Clarke Hall picnic pavilion on the shore of the Layou River; some poles were so severely eaten that they could be easily broken by hand. Fisher (1950, p. 141) and Beeson and Bhatia (1937, p. 305) listed many species of wood this beetle infests in the Old World Tropics, that it was found in the wood of the grape in Brazil, and gave notes on habits. The larva was described and illustrated by Gardner (1933, pp. 16, 17, pl. 4: figs. 55-56).

NOTES.—This species has a wide distribution in the Old World Tropics. It has been introduced into many places through commerce, including South America. Now it has been found in the West Indies for the first time. The species will certainly spread more and more in the American Tropics. The adult of this species was illustrated by Lesne (1924, fig. 133).

Xylomeira torquata (Fabricius)

Apate torquata Fabricius, 1801.

?*Apate tridens* Fabricius, 1792.

Sinoxylon floridanum Horn, 1885.

PREVIOUSLY RECORDED DISTRIBUTION.—Eleuthera; Cuba; Jamaica; Hispaniola; Mona; Puerto Rico; St. Thomas; St. John; St. Croix; Tortola; Antigua; Montserrat; Guadeloupe; Martinique; St. Lucia; Grenada; Mexico; United States (Blackwelder, 1945, p. 400; Fisher, 1950, p. 121).

DOMINICAN DISTRIBUTION.—Antrim, 1,000 feet, 15 March 1956, J. F. G. Clarke; Grande Savane, 21 March 1964, D. F. Bray, 1 July 1964, T. J. Spilman, 3 February 1965, J. F. G. and T. M. Clarke, 7-12 October 1966, A. B. Gurney; Macoucheri, 1, 26 February 1965, J. F. G. and T. M. Clarke; Cabrits Swamp, 23 February 1965, J. F. G. and T. M. Clarke and W. W. Wirth; path to Cabrits, 2 April 1966, R. J. Gagné; West Cabrit, 3 March 1964, D. F. Bray; Portsmouth, 2 March 1964, D. F. Bray, 1-2 April 1966, R. J. Gagné; Clarke Hall, 11, 27 February 1964, D. F. Bray, 3 July 1964, T. J. Spilman, 5-11 November 1964, P. J. Spangler, 1-20 February 1965, W. W. Wirth, 6 July 1965, D. M. Anderson, 19 May 1966, G. Steyskal, 10-12 October 1966, A. B. Gurney; Springfield Estate, 20-26 July 1963, O. S. Flint.

BIOLOGY.—Very little is known of the habits of this species. Fisher (1950, p. 121) stated that adults have been reared from horsebean (*Parkinsonia aculeata* L.), royal poinciana (*Poinciana* sp.), huisache (*Aca-*

cia farnesiana (L.) Willd.), and dead tamarind (*Tamarindus* sp.). Most of the specimens from Dominica were captured at lights. The immature stages of this species have not been described.

NOTES.—The adult of this species was illustrated by Lepesme (1947, fig. 243). This is the first report of the occurrence of this species on Dominica.

Family INOPEPLIDAE

Seven species of this family have been recorded from the West Indies. Only one species occurs on Dominica; this is the first report of such an occurrence. By comparison, three species have been reported from the neighboring island of Guadeloupe.

Inopeplus praeustus (Chevrolat)

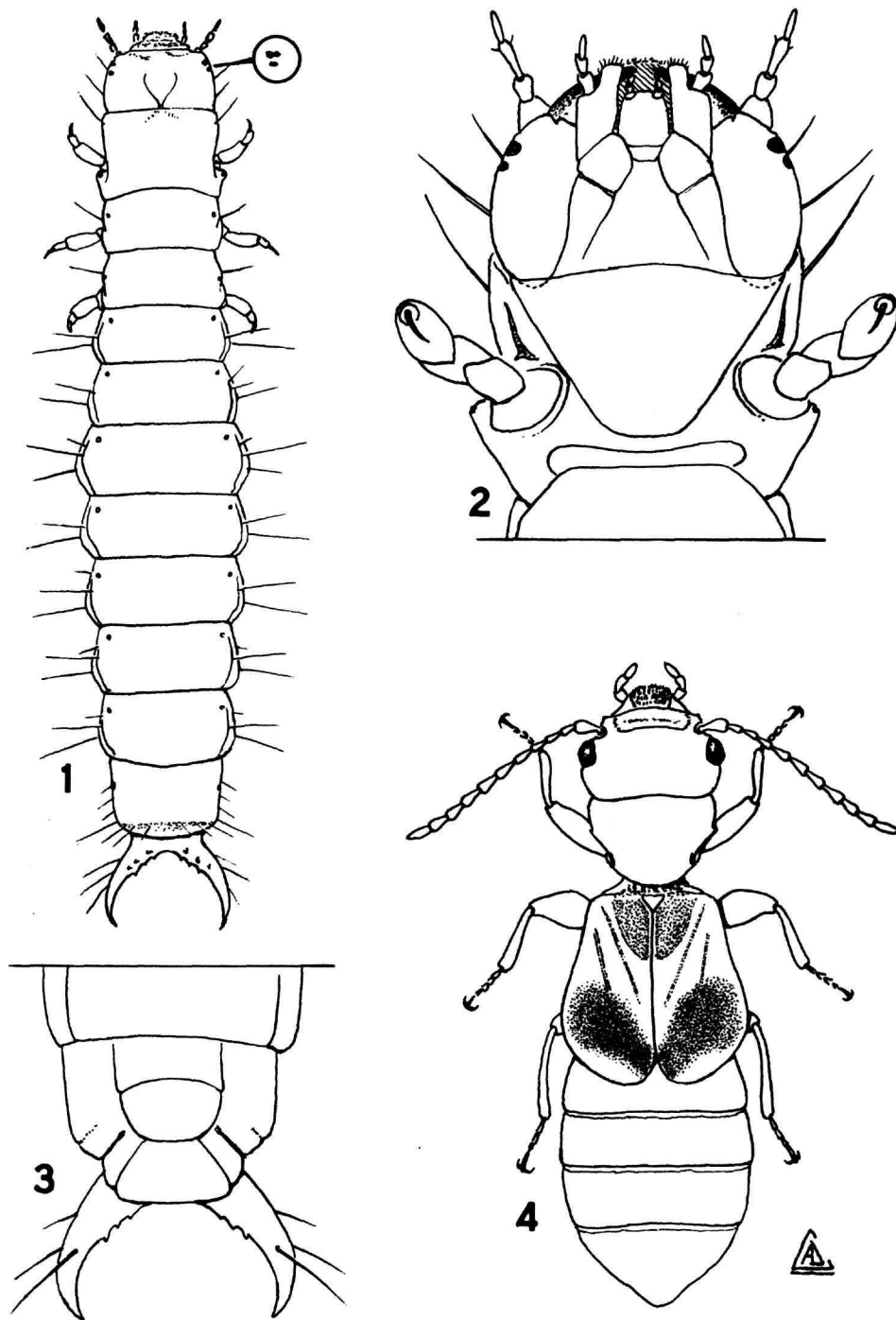
Ino praeustus Chevrolat, 1858.

PREVIOUSLY RECORDED DISTRIBUTION.—Guadeloupe; Martinique; St. Vincent (Peyerimhoff, 1902, p. 715; Blackwelder, 1943, pp. 139, 624).

DOMINICAN DISTRIBUTION.—Brantridge Estate, 1,600 feet, 10 January 1965, J. F. G. and T. M. Clarke; 1.9 miles west of Pont Casse, 11 September 1964, T. J. Spilman; .5 mile west of Point Lolo, 1,800 feet, 19 February 1965, J. F. G. and T. M. Clarke; Warner Road, 1 May 1964, O. S. Flint; Clarke Hall, 24 February 1964, D. F. Bray; Macoucheri, 1 February 1965, J. F. G. and T. M. Clarke; .6 mile north of Pont Casse, 9 July 1964, T. J. Spilman; Fortune, 27 July 1964, T. J. Spilman; Fond Figue, 16 March 1964, D. F. Bray; Belle Fille River, 3 miles southwest of Castle Bruce, 400 feet, 1 January 1965, R. T. Bell; Geneva Estate, Grand Bay, 31 December 1964, R. T. Bell.

BIOLOGY.—Many specimens were collected by several collectors on Dominica under bark of fallen trees; one specimen was collected at light. The very depressed larva and adult (Figures 1, 4) are well adapted to life in the confined space between bark and wood. My collections were made from logs of unidentified forest trees; Peyerimhoff (1902, p. 715) reported on larval and adult specimens of this species from branches of a cacao tree, which were also infested with Scolytidae on Martinique.

The larva of this species was described and illustrated by Peyerimhoff (1902, p. 715, figs. 4-6) from specimens found on Martinique. His description is



FIGURES 1-4.—*Inopeplus praeustus*: 1, larva, dorsal view; 2, larva, head, and prothorax, ventral view; 3, larva, apex of abdomen, ventral view; 4, adult, dorsal view.

good but his illustrations are too stylized or diagrammatic. The accompanying illustrations of the Dominican larva (Figures 1-3) will correct this. That larva and an adult were found side by side under bark.

NOTES.—The discovery of this larva helps to place the genus *Inopeplus* in beetle classifications. The genus is usually placed in the Cucujidae (Hetschko, 1930, p. 16; many other authors) and is often segregated in its own subfamily or tribe. *Inopeplus* and seven other genera were placed in the Laemophloeidae by Bøving and Craighead (1931, p. 35) in what amounted to the raising of several cucujid subfamilies to family status on the basis of larvae. However, Blackwelder (1943, pp. 138, 624) placed the genus in the Inopeplini of the Osoriinae of the Staphylinidae because of adult morphology and because he doubted the correctness of the association of the cucujid larva described by Peyerimhoff in 1902 with adult *Inopeplus praeustus*. Then Paulian (1946, p. 91, fig. 1) returned *Inopeplus* to the Cucujidae because of the male genitalia, and finally Crowson (1955, p. 128) raised the tribe or subfamily to family status, the Inopeplidae, in the Cucujoidea. The association of larvae and adults on Dominica leaves little doubt that *Inopeplus* is cucujoid, not staphylinoid.

Family LAGRIIDAE

Four species of this family, all in the genus *Statira*, have been reported from the West Indies. Only one of those species occurs on Dominica. By comparison, only one species, also *fulva*, occurs on the neighboring island of Guadeloupe.

Statira fulva Fleutiaux and Sallé

Statira fulva Fleutiaux and Sallé, 1889.

PREVIOUSLY RECORDED DISTRIBUTION.—Guadeloupe; Dominica (Blackwelder, 1945, p. 498).

DOMINICAN DISTRIBUTION.—Antrim, 1,000 feet, 10-20 March 1956, J. F. G. Clarke; Fond Figes, 6 April 1964, O. S. Flint; Springfield Estate, 20-26 July 1963, O. S. Flint; Layou Valley, 23-25 July 1963, O. S. Flint; D'Leau Gommier, 24 February 1965, J. F. G. and T. M. Clarke; .5 mile west of Point Lolo, 1,800 feet, 19 February 1965, J. F. G. and T. M. Clarke; .5 mile south of Pont Casse, 23-24 July 1963, O. S. Flint; 2 miles east of Pont Casse, 1,500 feet, 20

February 1965; 2.2 miles east of Pont Casse, 14 April 1964, O. S. Flint.

BIOLOGY.—Very little is known of the habits of this species. Adults were found on coffee trees on Guadeloupe, according to Fleutiaux and Sallé (1890, p. 431), and came to lights on both Guadeloupe and Dominica, according to Champion (1917, p. 230). The immature stages of this species have not been described.

NOTES.—Champion (1917, p. 230) said that "*fulva* is a form of *vittata*," but in that same article he kept the two species separate in the list of species and even redescribed *fulva* in the general discussions. The species *Statira vittata* Champion, 1896, is known from St. Vincent, the Grenadines, and Trinidad.

Family LYCTIDAE

Six species of this family have been recorded from the West Indies. Only one species occurs on Dominica; this is the first report of that occurrence. By contrast, three species have been recorded from the neighboring island of Guadeloupe.

Lyctus caribeanus Lesne

Lyctus caribeanus Lesne, 1931.

PREVIOUSLY RECORDED DISTRIBUTION.—Hispaniola; Puerto Rico; Guadeloupe; Central America; Mexico (Gerberg, 1957, p. 20).

DOMINICAN DISTRIBUTION.—Clarke Hall, 1-10 June 1965, J. F. G. and T. M. Clarke; mouth of Layou River, 9, 20 January 1965, W. W. Wirth; La Plaine, 17 February 1964, D. F. Bray.

BIOLOGY.—Bray collected this species at light. Gerberg (1957, p. 20) stated that specimens have come from a leguminous tree, in kola root, and in deadwood of avocado. The immature stages of this beetle have not been described.

NOTES.—The adult of this species was illustrated by Lesne (1931, fig. 1) and Gerberg (1957, pl. 3: figs. 1-7).

Family LYMEXYLONIDAE

Only one species of this family has been recorded from the West Indies. It has been reported from several islands, among them Dominica. By comparison, it occurs also on the neighboring island of Guadeloupe.

***Atractocerus brasiliensis* Lepeletier and Audinet-Serville**

Atractocerus brasiliensis Lepeletier and Audinet-Serville, 1825.

Atractocerus molorchoides Guérin, 1829.

Atractocerus dipterum Perty, 1830.

Atractocerus dipterorum Laporte, 1840.

Atractocerus dipterus Brullé, 1857.

Atractocerus antillarum Vitrac, 1913.

PREVIOUSLY RECORDED DISTRIBUTION.—Cuba; Jamaica; Puerto Rico; Guadeloupe; Dominica; St. Vincent; Barbados; Grenada; South America; Central America; Mexico (Simmonds, 1956, p. 693; Vaurie, 1957, p. 86).

DOMINICAN DISTRIBUTION.—Springfield Estate, 7 March 1964, D. F. Bray.

BIOLOGY.—Simmonds (1956, p. 693) stated that larvae have been collected from a log of mora (*Mora excelsa* Benth.), from logs of *Prioria copaifera* Griseb., from dying trunks of *Albizia lebbek* (Benth.), and from a log of mango (*Mangifera indica* L.) and that adults are frequently taken at light. He also (1956, p. 697, figs. 1-5, pl. 14) described and illustrated all stages in the life cycle of this beetle and gave a very good account of its habits.

NOTES.—The adult of this species was illustrated several times by the authors listed in the above synonymy.

Family MELANDRYIDAE

Two species of this family have been recorded from the West Indies. Only one species occurs on Dominica. By contrast, no melandryid has been recorded from the neighboring island of Guadeloupe.

***Phloeotrya mexicana* (Champion)**

Dircaea mexicana Champion, 1889.

PREVIOUSLY RECORDED DISTRIBUTION.—Dominica; South America; Central America; Mexico (Champion, 1889, p. 83; 1916, p. 37; Blackwelder, 1945, p. 495).

DOMINICAN DISTRIBUTION.—1.2 miles north of Pont Casse, 3 July 1964, T. J. Spilman.

BIOLOGY.—Very little is known of the habits of this species. I found adults in a rotten stump with *Uloma retusa* (Fabricius), a tenebrionid, in an area being

cleared for cultivation at 1900 feet elevation. The immature stages of this beetle have not been described.

NOTES.—The adult of this species was illustrated by Champion (1889, pl. 4: fig. 12).

Family MONOMMIDAE

Six species of this family have been recorded from the West Indies. Only one species occurs on Dominica; this is the first report of that occurrence. By comparison, that same species is the only one occurring on the neighboring island of Guadeloupe.

***Hyporhagus marginatus fabricii* Freude**

Hyporhagus marginatus fabricii Freude, 1955.

PREVIOUSLY RECORDED DISTRIBUTION.—Haiti; Dominican Republic; Guadeloupe; South America (Freude, 1955a, p. 725).

DOMINICAN DISTRIBUTION.—Morne Guy, 13 September 1965, D. M. Anderson.

BIOLOGY.—Nothing is known of the biology of this species. Freude (1955, p. 9) stated that adults of other monommids have been found under rotten *Opuntia* species, in rotten tree stump, under bark of *Pinus* species, on foliage, in debris, under stones, and at light, and that larvae have been found in roots and stems of agave, in rotten papaya stems, and in rotten wood of *Euphorbia* species. The immature stages of this species have not been described.

Family RHIPICERIDAE

Only one species of this family has been recorded from the West Indies. That species occurs on Dominica; this is the first report of that occurrence. By comparison, the same species is found on the neighboring island of Guadeloupe.

***Callirhipis lherminieri* Laporte**

Callirhipis lherminieri Laporte, 1834.

Callirhipis brunnea Laporte, 1834.

Callirhipis lacordairei Laporte, 1834.

Callirhipis insularis Laporte, 1840.

PREVIOUSLY RECORDED DISTRIBUTION.—Guadeloupe; St. Vincent (Champion, 1897, p. 290; Paulian, 1947, p. 139).

DOMINICAN DISTRIBUTION.—Freshwater Lake, 9 September 1964, T. J. Spilman, 9 June 1965, D. R. Davis; South Chiltern Estate, 17 August 1965, D. M. Anderson; Clarke Hall, 12-18 October 1964, P. J. Spangler; Pont Casse, 12-14 October 1964, P. J. Spangler, 24, 25 October 1966, A. B. Gurney; .4 mile east of Pont Casse, 6, 30 July 1964, T. J. Spilman; 1.0 mile east of Pont Casse, 23 July 1964, T. J. Spilman; 1.3 miles east of Pont Casse, 12 May 1964, O. S. Flint; 3 miles east of Pont Casse, T. J. Spilman; .5 mile south of Pont Casse, 11 April 1964, O. S. Flint; 2 miles northwest of Pont Casse, 18 May, 13 June 1965, D. R. Davis; Laudat, 11, 12, 13 June 1911; no further locality, June-July 1913, H. W. Foote.

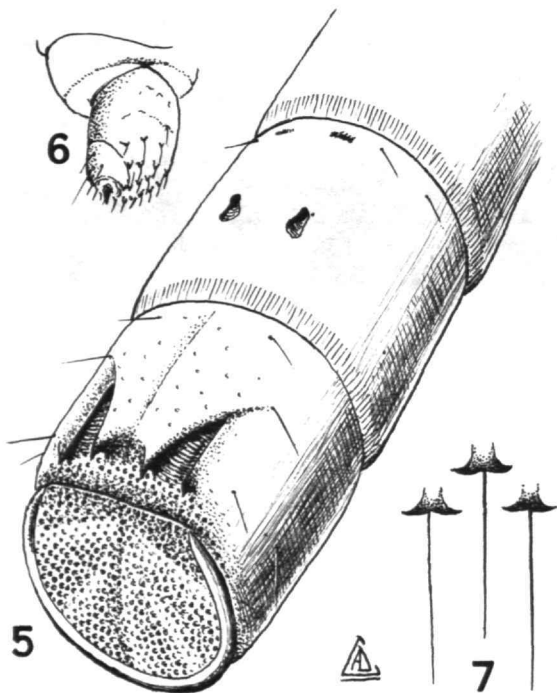
BIOLOGY.—Several collectors found larvae of this species in rotten wood on Dominica. I found larvae, pupae, and adults together in a piece of rotten wood and was successful in rearing larvae to adulthood. In one log I found larvae in company with adults of

Uloma retusa (F.), a tenebrionid, and *Pycnomerus* species, a colydiid. Often the wood was so decayed that it could be pulled apart manually. Emden (1932, p. 214) discussed the biology of the Callirhipini in general.

The Rhipiceridae, unlike most beetle families, are very well known in the larval stage. The late Fritz van Emden was the outstanding contributor to our knowledge of rhipicerid larvae, especially those in the Callirhipini, the tribe to which our species belongs. The larvae of 26 species of Callirhipini, 18 of them in the genus *Callirhipis*, were described, illustrated, and keyed by Emden in 1932 (pp. 213-256, pl. 11: figs. 6-10, pl. 12: figs. 11-14, 16-17, 26-27, pl. 13: figs. 18-19). Larvae of two more species of *Callirhipis* from India were described and the previous key was slightly revised by Emden in 1936 (pp. 151-156). Only a few species of Callirhipini have been made known since Emden's works. The larva of *Callirhipis onoi* Blair, from Guam, was described and illustrated by Zimmerman in 1942 (p. 46, fig. 1, pl. 1: figs. c, d). The larva of *Callirhipis* species, without locality, was briefly described and the apex of the abdomen illustrated by Peterson in 1951 (p. 186, fig. c51 [e]). The larva of *Horatocera niponica* Lewis, from Japan, was described and illustrated by Fukuda, Kurosa, and Hayashi in 1959 (p. 459, figs.)

The larva of *Callirhipis lherminieri* has not previously been described. The following description is done in the style of Emden's 1932 descriptions.

Larva: (Figure 5) Submentum posteriorly separated from epicranial halves by sutures. Prothoracic and mesothoracic terga coarsely, transversely strigate. Metathoracic tergum with strigae anteriorly, becoming smaller and then disappearing posteriorly. Abdominal terga 1-6 each with 6 very small, weak, transverse depressions and fine, sparse circular punctures; without strigate grooves or sharply bordered depressions. Abdominal tergum 7 with markings of terga 1-6 and also with pair of sharply bordered depressions, these depressions deep, with borders black and declivous posteromedially; without spines or strigate grooves. Abdominal tergum 8 with pair of triangular grooves on dorsal surface, each groove deep, triangular, sharply bordered, the borders terminating in dorsal and subdorsal spines, floor of groove curved and transversely strigate, groove's combined lateral borders subparallel and combined medial borders forming angle of 60°, grooves relatively long,



FIGURES 5-7.—*Callirhipis lherminieri*: 5, larva, apex of abdomen, dorsoposterolateral view; 6, larva, right prothoracic leg, anterior view; 7, pupa, asperites with setae attached.

ratio of length (anterior apex to apex of subdorsal spine) to dorsal length of tergum (base of tergum to apex of subdorsal spine) is 1.0 to 2.3; both pairs of spines near posterior border of segment, making area just dorsal to operculum rather steep; dorsal spines short, acute, apically curved, subdorsal spines shorter and weakly directed toward midline; with fine, sparse punctures except area between spines and just dorsal to opercular hinge with coarse, dense punctures. Operculum weakly convex, with dense, coarse punctures, with coarse marginal bead. Legs (Figure 6) very short and stout, with apical clawed segment (tibiotalus?), then an asymmetrical segment (femur?), and a large stout segment with a suture on medial surface (trochanter and coxa?); the divisions or "sutures" between these "segments" are not distinct and flexure between "segments" might not occur.

The larva of *Callirhipis lherminieri* from Dominica would be determined as "*Callirhipis valida* Champion?" from Costa Rica in Emden's key (1932, p. 222) except that the divergence of the medial borders of the strigated grooves on the 8th abdominal tergum is 60° in the former and 80° in the latter.

The Rhipiceridae, like most beetle families, are very poorly known in the pupal stage. Heretofore only one description of a pupa has been published. The pupa of *Paraennometes gardneri* Emden from India was described and illustrated by Gardner in 1931 (p. 429, pl. 24: fig. 3). (*Paraennometes* was given subgeneric rank in *Callirhipis* by Emden in 1932, p. 246.) The pupa of *Callirhipis lherminieri* from Dominica has the distinctive biramous, acute asperites (Figure 7) that were described and illustrated by Gardner in 1931 (pl. 24: fig. 3). In all respects the two pupae are very similar.

NOTES.—All four specific names were based on specimens found on Guadeloupe; the above synonymy was established by Paulian (1947, p. 139). The adult stage of the above species was adequately described and figured by Paulian (1947, p. 139, fig. 177).

Family RHIPIPHORIDAE

Seven species of this family have been reported from the West Indies. Only one of those species occurs on Dominica; this is the first report of that occurrence. By comparison, two species have been reported from the neighboring island of Guadeloupe.

Macrossaigon octomaculatum (Gerstäcker)

Rhipiphorus puncticeps LeConte, 1858.

Rhipiphorus octomaculatus Gerstäcker, 1855.

PREVIOUSLY RECORDED DISTRIBUTION.—Guadeloupe, St. Vincent; South America; Central America; United States (Blackwelder, 1945, p. 480).

DOMINICAN DISTRIBUTION.—Scott's Head, 19 October 1964, P. J. Spangler.

BIOLOGY.—Almost nothing is known of the habits of this species. Spangler captured the two females recorded above by beating *Hyptis verticillata* Jacq. The larvae of other species of this genus are hypermetamorphic and are parasitic on the larvae of wasps of the families Bembicidae, Tiphiidae, and Scoliidae. The hosts of *octomaculatum* are unknown and the immature stages have not been described.

NOTES.—The color pattern of this species is quite variable; one of the variations was illustrated by Champion (1891, pl. 16: fig. 10). This species has often been listed in the genera *Emenadia* and *Rhipiphorus*.

Literature Cited

- Anderson, W. H.
1939. A Key to the Larval Bostrichidae in the United States National Museum (Coleoptera). *Journal of the Washington Academy of Sciences*, 29:382-391, figures 1-46.
- Beeson, C. F. C., and B. M. Bhatia
1937. On the Biology of the Bostrichidae (Coleopt.). *Indian Forest Records, new series, Entomology*, 2:223-323, 19 figures, 3 plates.
- Blackwelder, R. E.
1943. Monograph of the West Indian Beetles of the Family Staphylinidae. *United States National Museum Bulletin*, 182:1-658, 19 maps.
1944-1957. Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies, and South America. *United States National Museum Bulletin*, 185:1-1492.
- Bøving, A. G., and F. C. Craighead
1931. An Illustrated Synopsis of the Principal Larval Forms of the Order Coleoptera. *Entomologica Americana*, 11, 1930[1931]:1-351, 125 plates.
- Champion, G. C.
1889-1893. Heteromera (part). *Biologia Centrali-Americana*, Insecta, Coleoptera, 4(2):1-494, 21 plates.
1897. On the Serricorn Coleoptera of St. Vincent, Grenada, and the Grenadines. *Transactions of the Entomological Society of London*, 1897:281-296.
1916. Notes on Melandryidae (3). *Entomologist's Monthly Magazine*, 52:32-40, 52-59, 75-83, 99-108, 144-157, illustrated.

1917. On New and Little-known Lagriidae from Tropical America. *Transactions of the Entomological Society of London*, 1917: 169-267, 2 plates.
- Crowson, R. A.
1955. *The Natural Classification of the Families of Coleoptera*. 187 pages, 212 figures. London: Nathaniel Lloyd and Co., Ltd.
- Emden, F. van
1932. Die Larven der Callirhipini, eine mutmassliche *Cerophytum*-Larve und Familien-Bestimmungstabelle der Larven der Malocodermata-Sternoxia-Reihe (Coleoptera) (Zur Kenntnis der Sandalidae 18). *Bulletin et Annales de la Société Entomologique de Belgique*, 72: 199-259, 3 plates.
1936. Zwei neue *Callirhipis* mit ihren Larven (Sandalidae, Col.) *Indian Forest Records, new series, Entomology*, 2: 151-156.
- Fisher, W. S.
1950. A Revision of the North American Species of Beetles Belonging to the Family Bostrichidae. *United States Department of Agriculture Miscellaneous Publication*, 698: 1-157.
- Fleutiaux, E., and A. Sallé
1890. Liste des Coléoptères de la Gaudeloupe et Descriptions d'Espèces nouvelle. *Annales de la Société Entomologique de France*, series 6, 9, 1889[1890]: 351-484.
- Freude, H.
1955. Die Monommiden der Welt. I. Teil: Die Monommiden der indo-australischen Region. *Entomologische Arbeiten aus dem Museum G. Frey*, 6: 1-73, 11 plates.
1955a. C. II. Teil: Die Monommiden der amerikanischen Region. *Entomologische Arbeiten aus dem Museum G. Frey*, 6: 684-763, 3 plates.
- Fukuda, A., K. Kurosa, and N. Hayashi
1959. Coleoptera. In T. Esaki, T. Kawada, N. Yuasa, N. Ishii, and T. Motoki, editors, *Illustrated insect larvae of Japan*. Pages 392-545, illustrated. [In Japanese.] Tokyo: Hokuryukan Co., Ltd.
- Gardner, J. C. M.
1931. The Early Stages of Two Species of Rhipiceridae (Sandalidae) from India. *Transactions of the Entomological Society of London*, 79: 427-430, 1 plate.
1933. Immature Stages of Indian Coleoptera (13) (Bostrichidae). *Indian Forest Records, new series, Entomology*, 18(9): 1-19, 4 plates.
- Gerberg, E. J.
1957. A Revision of the New World Species of Powder-Post Beetles Belonging to the Family Lyctidae. *United States Department of Agriculture Technical Bulletin*, 1157: 1-55, 14 plates.
- Hetschko, A.
1930. Cucujidae, Thorictidae (Suppl.), Cossyphodidae (Suppl.). *Coleopterorum Catalogus*, 109: 1-124.
- Kalshoven, L. G. E.
1963. Ecological Data on some Neotropical Scolytidae, Platypodidae and Bostrichidae (Coleoptera), Mainly of Surinam. *Beaufortia*, 9: 232-240, 2 figures.
- Leng, C. W., and A. J. Mutchler
1914. A Preliminary List of the Coleoptera of the West Indies as Recorded to January 1, 1914. *Bulletin of the American Museum of Natural History*, 2: 87-96, illustrated.
1917. Supplement to Preliminary List of the Coleoptera of the West Indies. *Bulletin of the American Museum of Natural History*, 37: 191-220.
- Lepesme, P.
1947. Bostrychoidea. *Faune de l'Empire Français. VIII. Coléoptères des Antilles*, 1: 194-233, illustrated.
- Lesne, P.
1906. Bostrychides nouveaux ou peu connus. *Annales de la Société Entomologique de France*, 75: 393-428, 26 figures.
1924. Les Coléoptères Bostrychides de l'Afrique Tropicale Française. *Encyclopédie Entomologique*, 3: 1-301, 210 figures.
1931. Notes sur les Coléoptères Térédiles. 20. Diagnoses de Bostrychides nouveau faisant partie des collections du Muséum. *Bulletin du Muséum d'Histoire Naturelle* [Paris], series 2, 3: 96-105, 4 figures.
- Paulian, R.
1946. Sur la Position systématique du Genre *Inopeplus* Smith (Coleoptera). *Bulletin de la Société Entomologique de France*, 51: 91, 1 figure.
1947. Famillie des Rhipiceridae. *Faune de l'Empire Français. VIII. Coleopteres des Antilles*, 1: 138-140, illustrated.
- Peterson, A.
1951. *Larvae of insects. Part 2. Coleoptera, Diptera, Neuroptera, Siphonaptera, Mecoptera, Trichoptera*. Columbus: Alva Peterson. 416 pages, illustrated.
- Peyerimhoff, P. de
1902. Descriptions des Larves de trois Coléoptères exotiques. *Annales de la Société Entomologique de France*, 71: 710-718, 6 figures.
- Plank, H. K.
1948. Biology of the Bamboo Powder-Post Beetle in Puerto Rico. *United States Department of Agriculture Federal Experiment Station, Mayaguez, Puerto Rico, Bulletin*, 44: 1-29, 19 figures.
- Simmonds, F. J.
1956. An Investigation of the Possibilities of Biological Control of *Melittoma insulare* Fairm. (Coleoptera, Lymexylonidae), a Serious Pest of Coconut in the Seychelles. *Bulletin of Entomological Research*, 47: 685-702, 5 figures, 1 plate.
- Vaurie, P.
1957. *Atractocerus brasiliensis* in Cuba. *Coleopterists' Bulletin*, 10: 86.
- Zimmerman, E. C.
1942. Rhipiceridae of Guam. *Bernice P. Bishop Museum Bulletin*, 172: 45-46, 1 plate.

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